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CLINICAL MANAGEMENT OF ACUTE POLIOMYELITIS

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Acute poliomyelitis for many years had been considered a disease specifically affecting the anterior horn cells of the spinal cord. Careful investigations have so extended our knowledge that the disease is now believed to be of a systemic nature, although one which has special predilection for motor spinal nuclei. Newer concepts of pathogenesis have afforded the opportunity for a fresh approach to problems of clinical management.[1]

During the past two years we have concentrated on the symptom complex of pain and spasm in acute poliomyelitis.[2] We have been impressed by the regular occurrence of lesions in the sympathetic ganglions of patients who died of this disease. The observations of ganglion cell changes and interstitial productive inflammatory phenomena in the sympathetic ganglions, as well as of similar lesions of the internuncial and intermediolateral cell groups of the spinal cord and brain stem, have given a rational anatomic explanation for vasomotor disturbances, ischemic pain and other evidences of sympathetic instability, so common in the acute phase of poliomyelitis. With this rationale as a basis, we have attempted to control the symptom complex of pain in poliomyelitis by the use of sympatholytic drugs such as priscoline® (2-benzyl-4,5-imidazoline) hydrochloride,[3] procaine hydrochloride by the intravenous route and diethylaminoethanol. Our preliminary successful studies in selected cases appeared to indicate that the control of pain shortened the period of hospitalization and permitted earlier rehabilitation of the patient.[2b]

The summer of 1949 saw a moderately severe epidemic of acute poliomyelitis in the City of New York. The opportunity was therefore available to more fully evaluate our new therapeutic approach. Six hundred and sixty-three patients were treated with priscoline® hydrochloride. This drug was chosen because of the ease of administration, the lack of toxicity and the evidence of its effectiveness in our previous studies.

PHARMACOLOGY

Hartmann and Isler [4] investigated forty-five imidazoles substituted in the 2-position and showed that there was a definite relationship between the chemical constitution and pressor activity of the drug. Changes in blood pressure were due primarily to decided vasodilatory effects on the skin and mucous membranes.[5]

The vasodilating action of priscoline® was found to be due essentially to the diminution or suppression of the action of epinephrine in the body.[6] The adrenolytic action of priscoline® is evidently determined by its effect on some phase of the enzyme system responsible for adrenergic functions and in some respects is similar to that of histamine. It is generally agreed that emotional disturbances and painful stimuli produce an increase in circulating epinephrine or epinephrine-like substances. There is experimental evidence that such increased epinephrine in the circulation produces peripheral and visceral ischemia. Pain, the result of ischemia, is a well known clinical entity. Consequently the use of a drug that not only diminishes the humoral component of pain but also, by its vasodilating action, increases the vascularity of an affected part is logical in any condition in which vasospasm is a factor, as it is in acute poliomyelitis.

TYPES OF PAIN AND TENDERNESS IN POLIOMYELITIS

Types of pain met with in acute poliomyelitis may be divided into two groups:

Subjective Pain.—This type of pain appears at the onset of the disease. The patient complains of pain in a part of the body, a group of muscles, an extremity or a joint. The pain is distressing and a source of constant irritation to the patient. It is manifested by fretfulness, restlessness and inability to sleep. The pain is intensified by motion, and as a result the patient not infrequently resents nursing care.

Objective Pain or Tenderness.—The patient with objective pain or tenderness as a rule has no complaints

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Read at the Clinical Conference, Kingston Avenue Hospital, June 1, 1950.

From the Communicable Disease Service and Department of Laboratories, Kingston Avenue Hospital.

1. Smith, E.; Rosenblatt, P., and Limauro, A. B.: The Role of the Sympathetic Nervous System in Acute Poliomyelitis: Preliminary Report, J. Pediat. **34**: 1-11, 1949.

2. (a) Smith, E.; Graubard, D. J.; Goldstein, N., and Bikoff, W.: A New Method in the Management of Acute Anterior Poliomyelitis, New York State J. Med. **48**: 2608-2611, 1948. (b) Smith, E.; Graubard, D. J., and Rosenblatt, P.: The Management of the Symptom Complex in Acute Poliomyelitis, ibid. **49**: 2655-2659, 1949.

3. Supplies of priscoline® and a grant in aid were given by Ciba Pharmaceutical Products, Inc., Summit, N. J.

4. Hartmann, M., and Isler, H.: Chemical Constitution and Pharmacological Activity of Imidazoles Substituted in 2-Position, Arch. f. exper. Path. u. Pharmakol. **192**: 141-154, 1939.

5. Meier, R., and Müller, R.: Vascular Action of a New Imidazole Derivative, Schweiz. med. Wchnschr. **69**: 1271-1275, 1939.

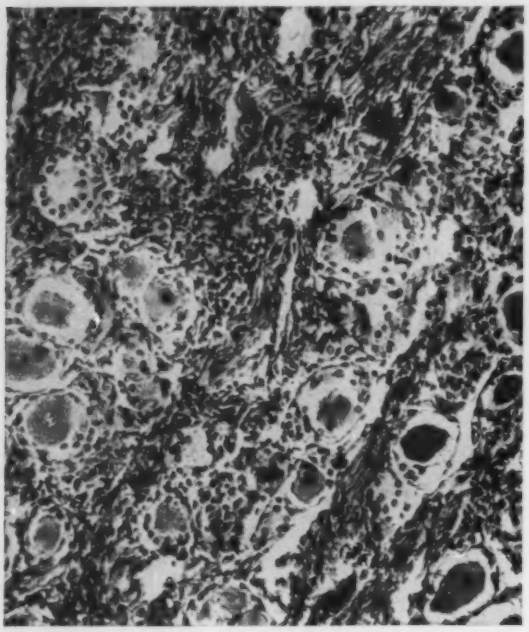
6. Schnetz, H., and Fluch, M.: Priscol, a New Vasodilator, Ztschr. f. klin. Med. **137**: 667-684, 1940. Litter, M.: Pharmacodynamics of Priscol: Its Sympatholytic Action, Semana méd. **42**: 794-803, 1944. Butturini, L.: Pharmacologic Action of 2-Benzylimidazole, Boll. Soc. ital. biol. sper. **15**: 611-613, 1940. Bucher, K.: Reversal of Effect of Adrenaline on Blood Pressure of Rabbits, Helvet. physiol. et pharmacol. acta. **4**: 65-270, 1946. Meier, R., and Bucher, K.: Circulating Effects of Privine and Adrenaline and Their Opposite Responses to Sympatholytics, ibid. **4**: 69-76, 1946. Braun, H.: Experimental Vascular Studies in Animals, Dermat. Wchnschr. **115**: 1008-1012, 1942.

when left undisturbed or unattended. When he is handled, however, he may resent or reject the nurse or examiner. There are several types of objective tenderness, which are elicited by palpation of (1) the skin, (2) the muscles or (3) the arteries.

Subjective pain and objective tenderness frequently coexist. Nearly all subjective pain is relieved quickly by sympatholytic drug therapy. Objective tenderness is, as a rule, relieved more slowly. It sometimes takes several days before the tenderness completely disappears.

PATHOGENESIS OF THE SYMPTOM COMPLEX

It is generally agreed that the symptom complex of any disease is largely determined by its pathologic basis. Characteristically, acute poliomyelitis is a specific virus infection which predominantly affects the gray matter of the central nervous system. In fatal cases the



Sympathetic ganglion from patient with bulbar poliomyelitis showing interstitial lymphocytic infiltrate and degenerative changes in ganglion cells (hematoxylin and eosin × 250).

anterior horn cells of the spinal cord bear the brunt of the inflammatory change. However, lesions are usually widespread and not infrequently involve the internuncial as well as the intermediolateral groups of neurons, the posterior horn cells and the brain stem and other higher centers. Sympathetic ganglions have been regularly involved in a number of cases observed at autopsy (see the accompanying illustration).[7] Histologic lesions are both degenerative and productive in type. In fact, the disease as it affects the central nervous system may aptly be described as a form of myelomeningoencephalitis. There may also be occasional systemic involvement of the heart, lymph nodes and other organs, but it is beyond the scope of this paper to discuss these features. Inflammatory foci may vary widely in size and distribution; they may be punctate or massive.

All somatic and visceral structures are represented either directly or indirectly in the gray matter of the spinal cord by afferent or efferent neurons or their processes. Hence, a disturbance in the gray matter of the central nervous system may be transmitted directly or reflexly to the somatic or visceral body structures.

Symptoms resulting from a single punctate lesion may, and frequently do, resemble the symptoms of multiple lesions. The area of spontaneous pain is largely determined by the locus of the lesion, which may be sufficiently irritative to the posterior nerve roots to reach the pain threshold. This pain may emanate from one or more segments of the spinal cord, thus rendering its particular dermatome or myatome painful or tender.

Impulses released by a single inflammatory focus may act on the intrasegmental, transsegmental or intersegmental neurons in the spinal cord and thus disturb the functional pattern of a large part of or of the entire nervous system. These spreading reflexes may produce symptoms in parts of the body far removed from the neural distribution of the injured site and may be responsible for pain, muscle tenderness, skin hyperalgesia and arterial tenderness. The spreading reflexes may affect an ipsilateral limb or even the function of an entire side of the body. Punctate irritative foci may also produce skeletal muscle spasm and affect smooth muscle and glands. Continued muscle spasm in turn may produce peripheral changes that furnish new reflex sources of pain.[8] The more intense the stimulation, the more widespread the area of reference.[2b]

It is therefore evident that a small inflammatory focus in the spinal cord may set up potentially a chain of reflexes leading to diffuse and varied clinical manifestations. To these must be added the symptoms resulting from concomitant inflammatory changes in the sympathetic ganglions. Lesions in these structures, whether reversible or not, may result in sympathetic imbalances that cause angiospasm, hyperhidrosis and dysfunction of the gastrointestinal and urinary systems.[9] A case illustrating some of the features that have been described may now be cited.

A. F., a white boy aged 14, was admitted to the Kingston Avenue Hospital on Sept. 23, 1941 with a three day history of pain in both lower extremities and difficulty in urination. Examination revealed a well developed, well nourished boy who was fretful, irritable and appeared uncomfortable. His neck and back were stiff. The abdominal, cremasteric and deep tendon reflexes of the right lower extremity were absent. He was unable to sit up and complained of severe pain in both lower extremities. The right lower extremity was cold and clammy. Examination of the spinal fluid showed: 180 cells per cubic millimeter, mostly lymphocytes; total protein 92 mg. per hundred cubic centimeters, and sugar (3 plus).

Fifteen days after admission the patient was transferred, unimproved, to an orthopedic hospital. There, because of the severe tenderness in both lower extremities, active physical therapy could not be begun until four weeks after admission. Treatment consisted of heat, massage, active and passive exercises, hydrotherapy and manual stretching of the quadriceps muscles. In February 1943 the patient was discharged from the hospital. Despite the apparent tremendous involvement of large segments of the spinal cord, the only residium was complete loss of function and atrophy of the right anterior tibial muscle.

It is evident that in the foregoing case the permanent lesion in the spinal cord was punctate in size, destroying the cells of the peroneal nerve in the region of the first

7. Footnotes 1 and 2.

8. Harpuder, K., and Stein, I. D.: Studies on the Nature of Pain Arising from an Ischemic Limb: Clinico-Experimental Observations, Am. Heart J. 25: 429-437, 1943.

9. White, J. C., and Smithwick, R. H.: The Autonomic Nervous System: Anatomy, Physiology, and Surgical Application, ed. 2, New York, The Macmillan Company, 1941.

sacral vertebra and causing the atrophy of the right anterior tibial muscle. The associated symptoms of pain, vasomotor instability, muscle spasm and absent reflexes were due either to sublethal changes in the ganglion cells or to spreading reflex activity. It is unreasonable to assume that large areas of the spinal cord remained subacutely inflamed for seventeen months. It is more likely that the symptom complex was the result of abnormal reflex activity, which slowly subsided as the source of irritation in the spinal cord lost its momentum. It is not unlikely that most cases of poliomyelitis follow a similar pattern. Clinical experience indicates that it is common for patients to show widespread paralytic and nonparalytic symptoms which clear up with a few residuals.

TABLE 1.—*Analysis of Therapy by Types of Poliomyelitis*

Type of Poliomyelitis	Total No. of Cases	Treated With Priscoline*	Treated Without† Priscoline*
Spinal, paralytic	385	358	27
Spinal, nonparalytic	232	159	73
Bulbar	41	19	22
Bulbospinal	110	77	33
Bulboencephalitic	42	21	21
Encephalitic	37	29	8
	847	663	184

* Trademarked drug.
† The drug was not used in 184 cases because the patients were free of pain and spasm, were acutely ill or had persistent vomiting before therapy was instituted.

CLINICAL MATERIAL FOR INVESTIGATION

Nine hundred and twenty-three patients were admitted to the hospital during the summer and autumn of 1949. Of these, the charts of 847 were reviewed and classified. Six hundred and sixty-three patients were treated with priscoline® hydrochloride (table 1). The patients selected for sympatholytic drug therapy were those who had subjective pain, objective muscle tenderness, arterial tenderness or muscle spasm or any combination of the foregoing signs or symptoms. There were 602 patients in this group, of whom 27 had lowered skin temperatures.

TABLE 2.—*Effect of Priscoline* Therapy on Average Oscillometric readings†*

	Before Priscoline*	After Priscoline*
Left arm	3.68	4.5
Left forearm	2.40	3.5
Right arm	3.75	4.70
Right forearm	2.53	3.75
Left thigh	2.91	3.45
Left leg	3.47	4.5
Right thigh	2.93	4.0
Right leg	3.50	4.25

* Trademarked drug.
† The drug produces vasodilatation and increases blood flow by counteracting the constricting effect of epinephrine-like substances of the vascular myoneural junctions. In support of these actions were the results of oscillometric studies in 61 cases, all of which showed increased blood volume to all extremities one-half to one hour after the administration of the drug. Readings were made on involved as well as uninvolved extremities, with two readings on each extremity, one before and one after the drug was administered.

Included in this series are 61 patients who were without evidence of pain or tenderness on admission. In a previous report we demonstrated that vasospasm existed in some patients with acute poliomyelitis. Oscillometric studies on patients in this group revealed definite evidence of decreased peripheral blood flow. Table 2 is a composite average of the readings of these 61 patients, including results for involved and non-involved extremities. After priscoline® administration readings show a definite increase in peripheral blood flow.

An attempt was made to avoid the use of the drug in all encephalitic, bulbar, bulbospinal and respirator cases. These groups of patients have an extremely high mortality rate. Some of these patients did receive priscoline,® but the drug as a rule did not alter the course of the disease.

The patients treated with the sympatholytic agent comprised both sexes and included persons varying in age from 9 months to 40 years. The majority of patients were from 5 to 18 years of age.

DOSAGE AND METHOD OF ADMINISTRATION

In most cases treatment with priscoline® was started as soon as the patient was admitted to the ward; in some cases, several hours after admission and in others, several days after admission. (Patients with bulbar and bulbospinal poliomyelitis who were vomiting were given the drug several days after admission.) The following dosage plan was prescribed:

GROUP 1.—*Aged 15 Years and Over.*—If the patient had acute pain or hyperesthesia or showed evidence of muscle spasm by refusing to straighten out an extremity, priscoline® hydrochloride was given intramuscularly. The initial dose was 50 mg. If the patient flushed, he was given 50 mg. every three or four hours. However, if he did not flush, the dose was increased 12.5 mg. every three or four hours until the amount necessary to produce the flush was found. This amount or the next smaller dose was then used as a maintenance dose. As soon as the pain and muscle spasm subsided, the drug was given orally. The oral [10] dose was usually higher than the intramuscular. The largest single dose given either intramuscularly or orally was 225 mg.

TABLE 3.—*Side Effects of Sympatholytic Drug Therapy**

Reaction	Yes	No
Vomiting	525	142
Flushing	607	60
Warmth	39	628
Palpitation	150	413
Diaphoresis	475	192
Chills	76	591
Formication	5	662
Diarrhea	19	648

* Blood pressure studies before and one-half hour after administration of the drug revealed little effect on the pressure, and shock levels were never approached. Variations of ±15 in both systolic and diastolic pressures were noted in 45 cases. The side effects were never serious. The symptoms were generally mild and frequently disappeared with continued treatment regardless of increase in dosage.

GROUP 2.—*Aged 5 to 15 Years.*—The initial dose of the drug was 37.5 mg. intramuscularly with increases of 12.5 mg. every three hours until flushing was noted, then the flushing dose was maintained every three hours during the day and every four hours at night until the patient was discharged or transferred to an orthopedic hospital. The oral [10] dose was usually higher than the intramuscular.

GROUP 3.—*Aged 1 to 5 Years.*—The initial dose of the drug was 25 mg. intramuscularly, and increases were by increments of 12.5 mg. every three hours until flushing was noted. The flushing dose was maintained every three hours during the day and four hours during the night until the patient was discharged or transferred. The oral [10] dose was usually higher than the intramuscular.

GROUP 4.—*Infants up to 1 Year of Age.*—The initial dose was 10 mg. of elixir of priscoline® [11] every three hours during

10. Delayed action Priscoline® tablets were given orally in the evening to avoid disturbing the patient during the night. These tablets may be obtained for investigative purposes on application to Ciba Pharmaceutical Products, Inc., Summit, N. J.
11. The elixir of prisoline® was especially prepared for this study and is not available commercially. It may be obtained for investigative purposes on application to Ciba Pharmaceutical Products, Inc., Summit, N. J.

the day and every four hours at night. The dosage was increased by increments of 5 mg. every three hours until a visible flush was noted, then the flushing dose was maintained every three hours during the day and every four hours at night until patient was discharged from the hospital.

The length of time that the drug was used varied with each patient, but most patients received it for the duration of their hospital stay. In the 663 patients who took the drug, it was used for a total of 7,348 days, or an average of 11.02 days each. When patients recovered from the acute phase of the disease and no further progression of signs or symptoms was noted, they were transferred to orthopedic institutions or sent home. The hospital stay for most patients was about two weeks.

PHYSIOLOGIC EFFECTS OF PRISCOLINE®

Patients responded to priscoline® therapy in a number of ways (table 3). These were noted and charted during the course of administration.

TABLE 4.—*Effect of Priscoline* on Average Skin Temperatures* †

	Before Priscoline*	After Priscoline*
Forehead	34.0	35.0
Chin	33.9	34.4
Right shoulder	33.9	35.0
Right cubital fossa	34.1	34.6
Right wrist	33.5	34.0
Right thumb	32.7	33.4
Right ring finger	32.7	33.4
Left shoulder	34.0	35.0
Left cubital fossa	34.3	35.2
Left wrist	33.2	34.0
Left thumb	32.9	33.5
Left ring finger	32.7	33.4
Umbilicus	34.5	35.5
Right hip	34.3	35.0
Right knee	32.0	33.1
Right ankle	32.4	33.0
Right great toe	31.4	32.2
Left hip	34.2	35.0
Left knee	32.7	33.5
Left ankle	32.5	33.0
Left great toe	31.3	32.1

* Trademarked drug.

† Skin temperature readings in 27 cases showed an average increase in all readings from 0.2 to 1.9 degrees Centigrade. These readings were made at various skin points from the forehead to the big toe one-half to one hour after the administration of the drug.

Nausea and Vomiting.—Nausea and vomiting[12] were frequent and occurred shortly after administration of the drug. If vomiting persisted antacids were given to the patient prior to, or simultaneously with, the drug, but these were seldom beneficial. When symptoms persisted the drug was given intramuscularly in smaller doses and increased to the flushing level gradually. In spite of this, vomiting frequently persisted, leading us to believe that the vomiting was of central origin and in part due to the disease process itself rather than the local gastric irritation. Furthermore, vomiting is not infrequently seen in untreated patients with acute poliomyelitis. When intractable vomiting persisted the administration of priscoline® was temporarily discontinued. In most instances nausea and vomiting ceased when the temperature returned to normal.

Flushing.—Flushing usually appeared about one-half hour after administration of the drug, first on the face, and later on the chest, abdomen and extremities. The flushing varied from small blotches to large patches; occasionally a diffuse, confluent erythema occurred over most of the body surface. A sense of warmth was invariably associated with flushing.

Warmth.—Occasionally the dose of the drug that ordinarily produced a flush would elicit only a sense of warmth. If the subjective pain was decreased or abolished and the patient appeared comfortable, the dose of the drug was not increased to the flushing level in these cases.

Palpitation.—Cardiac palpitation was a not infrequent side effect, occurring in 150 patients. This usually occurred during the flush period and lasted about one-half hour.

Diaphoresis.—Priscoline® either diminished or abolished diaphoresis except during the flushing stage. As is well known, sweating is an early and frequent symptom in acute poliomyelitis, and there appears to be no relationship to the height of the temperature.

Chills.—At times chills precede the warm or flushing stage. This lasts ten to fifteen minutes, and the patient may ask for extra blankets and hot water bags. The chill period is replaced by either the warmth or flushing stage.

Formication.—Five patients noted this peculiar paresthesia; they also complained that the hair on their scalps appeared to be standing on end.

Diarrhea.—There were 19 patients with diarrhea caused by the drug. Watery bowel movements occurred in 10 patients; the others had frequent soft movements.

RESULTS

Improvement of patients commenced within thirty minutes after the oral administration of priscoline®; the time was shorter when the drug was given intramuscularly. When the dose was sufficient to produce a therapeutic effect the patients experienced a sense of well-being and sighed with relief. The pain either diminished or disappeared completely. In most cases muscle tightness diminished and they were able to move the nonparalyzed parts more freely. They rested more comfortably during the day. Their appetite improved, and they enjoyed their food. The majority stated that they were able to sleep comfortably for the first time since the illness began. Muscle twitchings present in some of the patients receded. Cold and clammy skins became warm, and excessive sweating disappeared. Oscillometric readings (table 2) taken a half hour after the administration of the drug showed a moderate increase in blood flow, but this was not sustained. Skin temperatures (table 4) were similarly elevated for a short time.

Nearly all patients manifested some form of progress, and their clinical status improved so rapidly that it was possible to transfer the majority of them, relaxed and free of pain, to their homes or to orthopedic hospitals in seven to fourteen days. The nursing personnel was relieved of the tremendous patient-load that they would have had if treatment with hot packs had been used. Results such as these had not been accomplished in the past with any other form of symptomatic therapy.

REPORT OF CASES

The following case reports are typical of our series:

CASE 1.—R. B., a white man aged 23, was admitted to the Kingston Avenue Hospital with a two day history of headache, sore throat and stiff neck and back. One day before admission there developed severe pain in the right lower extremity. The left lower extremity was moderately tender.

Physical examination revealed an injected pharynx. The neck and back were stiff. Both hamstring muscles were in spasm. The right cremasteric reflex and the right knee jerk were absent. There was no hyperesthesia or hyperalgesia of the skin. There was muscle tenderness over the right and left lower extremities. The artery in the right femoral canal was

12. Perforated peptic ulcers were found in 2 children who had been given priscoline.® Operative repair was performed on 1 child, who subsequently recovered. In the other child, who had bulbar poliomyelitis, the perforation was found at autopsy and was clinically unsuspected during life. It is not known whether priscoline® is implicated in the pathogenesis of the ulcers, especially since such lesions have been described in patients with poliomyelitis who were not treated with sympatholytic drugs. These cases are to be described in detail and published at a later date.

tender. The temperature was 101 F., and examination of the spinal fluid revealed 10 cells per cubic millimeter, with total protein 54 mg. and sugar 97 mg., per hundred cubic centimeters. Because of the severe pain in the right lower extremity the patient was given 112.5 mg. of priscoline® hydrochloride orally every three hours during the day and every four hours during the night. The relief of pain and tenderness was slow; hence, the dose was increased to 200 mg. every three hours during the day and every four hours during the night. On the eighth day after admission physical examination revealed that all reflexes were present and that pain and muscle tenderness had completely disappeared. The patient was discharged with his condition diagnosed as nonparalytic poliomyelitis. Treatment with priscoline® had been discontinued on the day of discharge, and when the patient returned home pain developed in the left shoulder. The pain was agonizing, and he was unable to sleep that night. He returned to the hospital at midnight and asked to be readmitted. Physical examination revealed essentially normal conditions except for absent biceps and triceps reflexes in the left upper extremity. There was slight spasm of the left trapezius muscle. Elevation of the left arm was restricted because of pain and spasm. He was given 175 mg. of the drug every three hours during the day and every four hours during the night. The pain disappeared within twenty-four hours, and the spasm gradually subsided. The patient became asymptomatic and was able to move his left arm without pain. He was again discharged one week later.

CASE 2.—R. K., a white boy 3 years of age, was admitted to the Kingston Avenue Hospital with a four day history of fever, vomiting, stiffness of the neck and back, fretfulness and irritability. The mother stated that he made no attempt to get on his feet, and when his legs were manipulated he would cry out as if in severe pain.

Physical examination revealed that the child had a moderately stiff neck and back. All reflexes were present and active in the left lower extremity. The right knee jerk was absent. Both legs were painful and tender to manipulation, the right more so than the left. Examination of the spinal fluid showed: 140 cells per cubic millimeter; total protein 39 mg. and sugar 78 mg., per hundred cubic centimeters, and globulin absent.

The child was given 37.5 mg. of priscoline® hydrochloride orally every three hours during the day and every four hours during the night. While he was in the hospital and receiving the drug, he ran around the crib and appeared to have firm footing on both legs. Examination on discharge revealed a diminished right knee jerk. Priscoline® therapy was discontinued and the patient was discharged ten days after admission. At home, on the following day, the child complained of pain in both legs and refused to walk; when he was urged to walk by his mother, both legs folded under him. Treatment with the drug was then reinstituted, the pain subsided, and the child again began to walk freely.

CASE 3.—E. B., a white girl aged 14, was admitted to Kingston Avenue Hospital with a ten day history of aches and pains in the back, right thigh, calf and toes and some slight pain in the back of the left thigh. The day before admission she had a sore throat; the temperature rose to 101 F., and she began to drag her right leg.

Physical examination revealed a moderately stiff neck and back. The abdominal reflexes were absent. The knee and ankle jerks were absent on the right and depressed on the left. Both lower extremities were painful to manipulation and tender to palpation. Examination of the spinal fluid showed no cells; the total protein was 72 mg. and sugar 74 mg., per hundred cubic centimeters.

Because of the pain in the legs and the general discomfort 75 mg. of priscoline® hydrochloride solution was given intramuscularly every three hours during the day and every four hours during the night. This regimen was continued for six days, at which time all pain and tenderness left her and the hamstring spasm was sufficiently released to permit her walking without pain. She was discharged as having a mild paralytic poliomyelitis with slight residual weakness of the right leg. At home she complained that on arising in the morning she was "muscle-bound." The muscle stiffness was relieved after she took the first dose of the sympatholytic agent. Therapy with this drug was continued for two months at home, and she had no further complaints.

CASE 4.—J. M., a white girl aged 16, was admitted to the Kingston Avenue Hospital with a three day history of headache, vomiting, stiff neck and back. The day before admission pain had developed in both legs, and she found walking extremely difficult.

Physical examination revealed a moderately stiff neck and back. The abdominal reflexes were absent, the left knee and ankle jerks were diminished and the right were absent. The right hamstring muscle was in spasm, and the leg was flexed on the thighs making an angle of 90 degrees. Both legs were painful and tender to palpation. Results of the spinal fluid studies were consistent with a diagnosis of poliomyelitis. The temperature was 101 F.

She was given 75 mg. of priscoline® hydrochloride orally every three hours during the day and every four hours during the night. The dose was gradually increased to 175 mg., and with concomitant physical therapy the range of motion of the right leg steadily increased and the range of hamstring spasm decreased. She was transferred to an orthopedic hospital twelve days after admission with her right leg fully extended and free of pain.

CASE 5.—W. H., a white boy 12 years of age, was admitted to the Kingston Avenue Hospital with a two day history of severe headache, vomiting and pain in the back of the neck. His mother stated that from the moment he took ill he was disoriented and irrational.

Physical examination revealed an acutely ill child; he was drowsy and responded sluggishly to questions. His face was flushed; his eyes were wide open, and the pupils were dilated. He showed a lateral nystagmus. There was circumoral pallor, and the lips were dusky. The skin was moist and showed evidence of congenital ichthyosis. His neck was rigid and his back was arched, assuming a position of extreme opisthotonus. There were 1,100 cells per cubic millimeter in the spinal fluid; the total protein was 60 mg. and the sugar 85 mg., per hundred cubic centimeters. The temperature was 102.5 F.

The admission diagnosis was poliomyelitic encephalitis, and the patient was placed in an oxygen tent. The next day he was given 62.5 mg. of priscoline® hydrochloride solution intramuscularly every three hours during the day and every four hours during the night. He did not vomit. By the end of the first day of treatment with the drug he became rational and complained of inability to lie flat on his back and of pain in both legs. Reexamination revealed the absence of abdominal and cremasteric muscle reflexes; the knee and ankle jerks were not obtainable. The muscles and arteries were moderately tender to palpation. The dose of the drug was gradually increased to 187 mg. every three hours during the day and every four hours during the night. Eleven days after admission the child was able to lie on his back for the first time. The dose was then slowly decreased, and patient began to show evidence of gastrocnemius and hamstring spasm, which again subsided when the dosage of the drug was increased. He received the drug for thirty-one days and was transferred to another institution with flaccid lower extremities and decided weakness of the spinal and abdominal muscles.

CASE 6.—I. R., a white woman aged 29, eight months pregnant, was admitted to the Kingston Avenue Hospital on Aug. 6, 1949 with a one day history of headache, vomiting, stiff neck and back and pain in both legs.

Physical examination on admission showed all deep reflexes to be present but somewhat depressed. Both legs were painful on manipulation and tender to palpation. The arteries in the femoral canals were tender to the touch. The temperature was 102 F. Examination of the spinal fluid revealed 215 lymphocytes per cubic millimeter, with the total protein 120 mg. and sugar 75 mg., per hundred cubic centimeters; the culture remained sterile.

Because of the restlessness of the patient and the pain in both legs she was given 100 mg. of the drug intramuscularly every three hours by day and every four hours by night. On the following morning the abdominal reflexes were absent and both legs were completely paralyzed. Pain in the extremities, though diminished in intensity, persisted. The dose was then raised to 112.5 mg. and later to 125 mg. On this increased

amount of the drug she remained comfortable and free of pain in the extremities. However, diarrhea developed. When treatment with the drug was discontinued, pain in the legs returned and the diarrhea stopped. When the drug was again given the diarrhea returned and the pain in the legs stopped. She chose to have the diarrhea rather than the pain. Twelve days after admission she was transferred to an orthopedic hospital completely relaxed and free of pain. At the termination of her pregnancy, in October, she delivered a normal baby boy.

COMMENT

At the present time there is no form of treatment in acute poliomyelitis that limits the spread of virus in the central nervous system or alters its effect on the nerve cells. Many patients recovered completely without treatment but others, despite heroic measures, suffer extensive paralyses.

In the past few years there has been an increasing interest in the control of pain and vasomotor instability.[13] Various means of sympatholysis have been tried to correct the vasomotor dysfunctions.[14] Maintenance of muscle circulation aids in its rehabilitation, and the degree of recovery is directly related to the time of institution of corrective measures.

Our objective has been to shorten the duration of pain, muscle spasm and vasomotor instability during the acute and subacute stages of poliomyelitis so that measures for rehabilitation of the patient can begin as early as possible. It is our belief that priscoline® has been a useful adjuvant in the early management of the disease. It has allowed us to eliminate use of moist hot packs and has enabled us to handle a large number of patients in this past epidemic with more comfort and without taxing our limited nursing staff. Patients could be transferred for orthopedic management earlier than in previous years. At the very least the further investigation of priscoline® and of other sympatholytic drugs is indicated.

SUMMARY

1. During the year 1949, 663 patients with acute poliomyelitis were treated with priscoline® (2-benzyl-4,5-imidazoline) hydrochloride, a sympatholytic drug.

2. The benefits to treated patients included the relief of pain, spasm and vasomotor dysfunction.

3. In the dosage plans described, morbidity was minimal.

4. Further investigation of the use of sympatholytic drugs in acute poliomyelitis is indicated.

13. Collins, V. J.; Foster, W. L., and West, W. J.: Vasomotor Disturbances in Poliomyelitis, with Special Reference to Treatment with Paravertebral Sympathetic Block, New England J. Med. **236**: 694-697, 1947.

14. Graubard, D. J., and Peterson, M. C.: Clinical Uses of Intravenous Procaine, in Adriani, J.: American Lecture Series, A. Monograph in American Lectures in Anesthesiology, Springfield, Ill., Charles C Thomas, Publisher, 1950.

Cardiac Arrhythmias.—The electrocardiogram is the final authority in unravelling the rhythms of the heart. It can tell where each impulse arises and how it spreads. Of course, as is true of the necropsy, the electrocardiogram may occasionally fail to give a completely satisfactory solution. For example, paroxysmal tachycardia occurs more often at the bedside than in electrocardiographic files because the attack may be over before the record is obtained. Sometimes the clinical history may be more helpful in distinguishing the nature of rapid heart action, as in differentiating sinus tachycardia and paroxysmal supraventricular tachycardia. Even with such limitations, the electrocardiogram can be considered the "living autopsy" for the diagnosis of cardiac arrhythmias.—Louis N. Katz, Clinical Electrocardiography—Its Present Position and Possible Potentialities, *Circulation*, July 1950.

SKIN COMPLICATIONS OF CORTISONE AND ACTH THERAPY

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At the present time the therapeutic status of cortisone and pituitary adrenocorticotropic hormone (ACTH) is being evaluated by scientific studies in many institutions. The following report is a brief summary of the skin complications observed in patients treated with ACTH at the Mount Sinai Hospital, New York.[1]

REPORT OF CASES

CASE 1.—S. L., a 17 year old girl, was admitted to Mount Sinai Hospital with chief complaints of polyarthritis, intermittent "sore throat," fever and cervical adenopathy of one month's duration. The patient also had facial erythema with butterfly distribution for one year. Laboratory findings included anemia, increased sedimentation rate, reversal of the albumin-globulin ratio, hematuria and albuminuria. Lupus erythematosus cells were demonstrated in the peripheral blood and bone marrow. On the basis of these findings, the diagnosis of acute disseminated lupus erythematosus was made. ACTH was prescribed for the patient, with an initial dose of 100 mg. This dose was gradually lowered so that in eight days the patient was receiving 40 mg. a day. On the twelfth day of therapy, an acneiform eruption involving the face (fig. 1) was noted. Shortly after, striae were noted on the abdomer (fig. 2). On the twenty-eighth day of therapy purplish striae were also seen on the arm. On the thirty-fourth day of therapy a moderate rounding of the face was also observed (fig. 3).

Fig. 1.—Acneiform eruption involving the forehead.

CASE 2.—C. B., a 35 year old white woman, was admitted to the Mount Sinai Hospital with a nineteen month history of polyarthritis, intermittent fever, weight loss and facial erythema. Physical examination revealed a cachectic woman with polyarthritis, cervical adenopathy and a decubitus ulcer on the left buttock. Laboratory findings showed a hypochromic anemia, reversal of the albumin-globulin ratio, increased sedimentation

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1. Dr. George Baehr, Director of Clinical Research at the Mount Sinai Hospital, New York, permitted the authors to observe and report the first 3 patients. Dr. Baehr and Dr. Soffer have published several reports on the treatment of disseminated lupus erythematosus with cortisone and ACTH, including complications observed while the patients were being treated.

rate, microscopic hematuria, albuminuria and the presence of lupus erythematosus cells in the blood and bone marrow. On the basis of these findings, the diagnosis of acute disseminated lupus erythematosus was made.

The patient was given 100 mg. of ACTH for five days and 50 to 75 mg. daily for the following two weeks. On the fifth day of therapy the facial erythema began to fade, and a brownish pigmentation appeared on the upper lip. On the twentieth day of therapy there was a deep pigmentation of the original area involved by the facial erythema (butterfly distribution). In addition, there was a deep pigmentation of the surrounding skin (fig. 4). At the same time hypertrichosis of the chin and upper lip began to develop. During the period of ACTH therapy the decubitus ulcer and the wound from a cutaneous biopsy showed no signs of healing. An additional observation at this time was the presence of hyperpigmentation around the nongranulating wound (fig. 5).

CASE 3.—N. M., a 24 year old white woman, was admitted to the Mount Sinai Hospital with a five month history of joint pains, fever and weight loss. Examination revealed a disoriented woman with patchy erythema of the face, sustained ankle clonus and a sacral decubitus ulcer. Laboratory findings included anemia, leukopenia, albuminuria, microscopic hematuria, increased sedimentation rate, reversal of the albumin-globulin ratio, a 3 plus Kahn reaction of the blood and the

Fig. 2.—Abdominal striae which appeared after several weeks of ACTH therapy.

presence of lupus erythematosus cells in the bone marrow and peripheral blood. On the basis of these findings, the diagnosis of acute disseminated lupus erythematosus was made. ACTH therapy was started, 100 mg. daily with a gradual decrease to 40 mg. daily over a period of forty-two days. At the end of this time an acneiform eruption involving the face and chest (fig. 6) developed.

CASE 4.—S. M., a 58 year old white woman, was admitted to the Mount Sinai Hospital with a history of a recurrent erythema multiforme type of skin eruption for the preceding nine months. At the time of an admission six months previously, the patient had a high fever and a generalized skin eruption with many areas of frank necrosis. The patient became toxic as evidenced by weight loss, high spiking temperature, anemia and a general downhill course. With combined therapy with blood transfusions, penicillin, aureomycin and sulfonamide drugs, the skin healed, with the formation of a keloidal type of scarring and pigmentation. The patient was asymptomatic for three months and then the skin lesion recurred with extensive edema of the face and neck. Laboratory data disclosed an eosinophil count of 42 per cent with eosinophilic infiltration of the bone marrow. Penicillin was again administered to the patient with no effect. The extensive skin lesions gradually became necrotic, and the patient seemed almost moribund. The patient was given a total dose of 1.5 Gm. of ACTH over a period of thirteen days with dramatic response. After a week of therapy, there were no new lesions and the original necrotic lesions showed regression. However, on the sixth and seventh days of therapy there was noted a generalized pigmentation,

Fig. 3.—Moderate rounding of the face (moon face) and acneiform eruption of the face and neck.

especially around the skin lesions and a biopsy site. This deep biopsy site, which was one week old, opened on the fifth day of ACTH therapy. It showed no signs of healing, and granulation tissue was completely absent (fig. 7). Another interesting

Fig. 4.—Hyperpigmentation of the eyelid and upper lip and hypertrichosis of the upper lip.

phenomenon noted was the complete flattening and softening of the large keloidal scars (fig. 8) distributed over the extremities (sequelae of the previous exacerbation). About two or three days after the cessation of therapy granulation tissue appeared and the biopsy site subsequently healed.

COMMENT

The use of cortisone and ACTH in various diseases and disease processes is being carefully evaluated throughout the medical world. This report is intended solely to describe and discuss the various skin manifestations encountered during therapy with these drugs. These manifestations are hyperpigmentation, acneiform eruptions, hirsutism, rounded face (moon face), striae atrophicae, delayed wound healing and flattening of keloidal scars.

Some of these cutaneous manifestations have been reported previously [2] as components of Cushing's syndrome. This term is used in referring to the clinical picture of hyperadrenocorticism, regardless of its cause. Albright listed the cutaneous criteria of this syndrome as thin, easily bruisable, reddish skin, purplish striae, obesity of the face and neck (moon face) and mild hirsutism.

Soffer [3] includes obesity and purplish striae of the skin among the manifestations of Cushing's syndrome.

Fig. 5.—Decubitus ulcer which showed no signs of healing while the patient was receiving ACTH. The skin surrounding the ulcer became darkly pigmented during this time.

He observed that purpura, ecchymosis and petechiae tend to develop in patients with the syndrome because of an easily bruisable and thin skin. The proof that these manifestations were not due to any intrinsic blood dyscrasia was evident in that the patients' bleeding and coagulation time, as well as the clot retractility, prothrombin index and platelet counts, were essentially normal.

The striae atrophicae,[4] a fairly consistent finding in Cushing's disease, has been considered caused by a thinning of the skin due to protein depletion. Skin eruptions often develop in these patients, the most common of which is an acneiform eruption with absence of oiliness and few comedos on the face, upper part of the chest, back and buttocks. Thus it is not surprising that in administration of adrenocorticotropic hormone, a hyperadrenocortical state is produced, similar to that which exists in Cushing's syndrome and with similar somatic changes. The appearance of acneiform eruptions and hypertrichosis following the use of these drugs leads to speculation concerning the fundamental mechanisms causative of these distressing cosmetic disturbances. Perhaps a reversal of these side effects will be possible with some future biochemical developments.

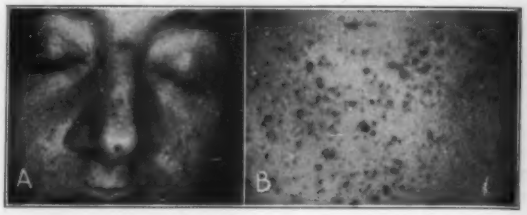

Fig. 6.—*A*, Acneiform eruption which appeared while the patient was receiving ACTH; *B*, eruption involving the chest.

In the cases described, striae atrophicae, hirsutism, acneiform eruptions and roundness of the face can be accounted for by the hyperadrenocortical state. Hyperpigmentation has also been reported, though rarely, in Cushing's disease. In his discussion on ACTH, Sprague [5] refers to the occurrence of pigmentation in patients receiving ACTH and states that the pigmentation closely resembles that of Addison's disease. Of interest is the fact that ACTH preparations have been found to contain appreciable amounts of melanophore hormone (intermedin) on bioassay in frogs from which the hypophysis had been removed.

The occurrence of delayed wound healing and the flattening of keloidal type scars during ACTH therapy is due to some mechanism which depresses the activity of the connective tissue. Baehr and Soffer [6] advanced an explanation of one phase of the problem by stating that the "administration of large doses of cortisone and ACTH to patients with disseminated lupus erythematosus prevents or arrests the abnormal enzymatic processes in mesenchymal cells initiated by an unknown

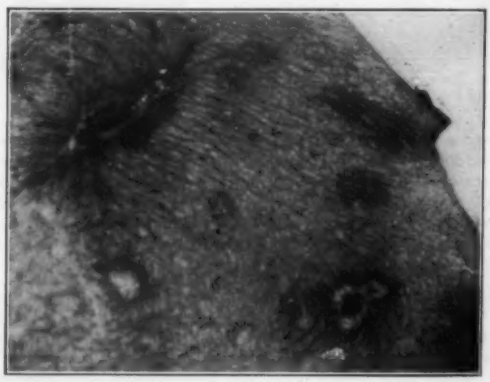

Fig. 7.—Biopsy site which showed no signs of healing while patient was receiving ACTH.

2. Albright, F.: Cushing's Syndrome in Harvey Lectures, 1942-1943, Baltimore, Williams & Wilkins Company, 1943, p. 123.

3. Soffer, L.: Diseases of the Adrenals, Philadelphia, Lea & Febiger, 1946, p. 198, 215.

4. Albright, F.; Parson, W., and Bloomberg, E.: Cushing's Syndrome Interpreted as Hyperadrenocorticism Leading to Hypergluconeogenesis: Results of Treatment with Testosterone Propionate, J. Clin. Endocrinol. **1**: 375 (May) 1941.

5. Sprague, R. G., in the Proceedings of the First Clinical ACTH Conference, New York, The Blakiston Company, 1950, p. 384.

6. Baehr, G., and Soffer, L.: Treatment of Disseminated Lupus Erythematosus with Cortisone and Adrenocorticotropin, Bull. New York Acad. Med. **26**: 229 (April) 1950.

causative factor. The action of these potent hormonal agents is in this sense nonspecific. Hence their wide spectrum of effectiveness in a great variety of disease processes (rheumatoid arthritis, rheumatic fever, disseminated lupus erythematosus, allergies, pemphigus, wound healing, etc.) which have one thing in common, namely, that their various causative factors exert a detrimental influence primarily upon the collagenous or, in a broader sense, the mesenchymal tissues of the body." Ragan [7] also noted that in several patients treated with ACTH there was no wound healing, and absence of granulation tissue persisted while these patients continued treatment. He also stated that the symptomatic remission of many of the so-called connective tissue diseases may, in part, be related to the depression of the activity of the connective tissue (fibroblasts, blood vessels and ground substance) by cortisone and ACTH. The mechanism whereby cortisone and ACTH lead to this suppression or decrease in reactivity of the connective tissue in response to trauma is not clear. The catabolic or antianabolic effect of hyper-

Fig. 8.—Keloids of the neck which flattened considerably while patient was treated with ACTH. The surrounding skin became deeply pigmented during this period of therapy.

adrenalism on protein metabolism has been described and may reflect the decreased reactivity of mesenchymal tissues.

Another recent observation (Russell [8]) possibly related to these effects is that the active adrenal steroids have a pronounced inhibitory effect on the "spreading factor" of the skin. This action seems to be due to inhibition of hyaluronidase, an important enzyme which acts on the ground substances in interstitial spaces. The effect is immediate and may be observed after local application of the cortical steroids.

SUMMARY AND CONCLUSION

Four cases, illustrative of the skin complications of hyperadrenocorticism produced through the administration of cortisone and pituitary adrenocorticotropic hormone (ACTH) are reported. The skin manifestations are hyperpigmentation, acneiform eruptions, hirsutism, rounded face (moon face) striae atrophicae, delayed wound healing and flattening of keloidal scars.

2 East Sixty-Ninth Street.

7. Ragan, C., in discussion on Sprague, R., and Power, M.: Metabolic Effects of Cortisone and ACTH Rheumatoid Arthritis, Proceedings of the First Clinical ACTH Conference, New York, The Blakiston Company, 1950, p. 384.

8. Russell, J.: Physiology of the Pituitary-Adrenal System, Bull. New York Acad. Med. **26**: 240 (April) 1950.

TWENTY-SIX YEARS OF SURVIVAL FOLLOWING CARCINOMA OF SIGMOID WITH PROLONGED LIVER METASTASIS

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Survival periods for patients with carcinoma of the colon who have had recurrences after resections have been reported as averaging fourteen to thirty-three months.[1] After surgical removal of a primary tumor the incidence of local recurrence and of metastasis has been reported as high as 25 to 50 per cent.[1a] In those cases in which carcinoma existed without regional lymph node involvement, Bockus [2] reported a five year survival rate of 72 per cent. Ochsner and DeBakey [3] previously had reported five year survivals in 30.7 per cent of a large group of 3,911 resections. Bockus has pointed out that 75 per cent of persons afflicted with metastasis to the liver from carcinoma of the colon die within six months and 85 per cent within a year.

The present case is being reported because of the unusually long interval between the resection of an adenocarcinoma of the rectosigmoid colon and the appearance of distant metastasis and because of the further long survival period after the metastasis made its appearance.

REPORT OF CASE

Original Lesion.—A white woman aged 26½ years was admitted to St. Luke's Hospital in New York in February 1922. She had complained of diarrhea with occasional blood in her stools for six months prior to admission. Roentgenograms of the gastrointestinal tract revealed an obstructive annular lesion in the rectosigmoid. This observation was confirmed by sigmoidoscopy and biopsy, and on March 22, 1922 a segment of colon including the tumor was resected by Dr. Richard W. Bolling and the defect repaired by an end to end anastamosis.

The pathologist confirmed the presence of an annular, obstructing, infiltrating adenocarcinoma of the sigmoid colon, the tumor cells having invaded the bowel wall as far as the subserosal fat. The adjacent lymph nodes were hyperplastic but did not contain any metastatic tumor.

After operation the patient was given a course of five high voltage roentgen treatments. Her recovery was uneventful. She enjoyed good general health and subsequently married, had a child, kept house and also worked as a seamstress until her death in June 1948.

Metastasis to Liver.—In May 1945, twenty-three years after the removal of the sigmoid carcinoma and three years before her death, the patient began to complain of a "nervous stomach," which had bothered her only slightly and intermittently for the previous fifteen years. She was then under the care of Dr. M. H. Ruby of Waterbury, Conn. Her complaint was described as consisting of a mild bloated feeling and a vague unlocalized sensation of heaviness in the abdomen, at times accompanied with alternate attacks of diarrhea and constipation. In July 1945, when her abdominal symptoms became somewhat

From the medical service of Beth David Hospital.
Dr. Milton Helpern aided in the preparation of this paper. Dr. Josef Gudemann performed the autopsy and prepared the photograph. The original hospital record was made available by St. Luke's Hospital.

1. (*a*) Rankin, F. W.: The Rankin Operation for Resection of the Rectum and Rectosigmoid, in Treatment of Cancer and Allied Diseases edited by Pack, G. T., and Livingston, E. M., New York, Paul B. Hoeber, Inc., 1940, vol. 2, p. 1396. (*b*) Rankin, F. W., and Olson, P.F.: The Hopeful Prognosis in Cases of Carcinoma of the Colon, Surg., Gynec. & Obst., **56**: 366 (Feb.) (No. 2 A) 1933.

2. Bockus, H. L.: Gastro-Enterology, Philadelphia, W. B. Saunders Company, 1944, vol. 2.

3. Ochsner, A., and DeBakey, M.: Operability, Morbidity, and Mortality Factors in Carcinoma of the Colon, Am. J. Surg., **46**: 103 (Oct.) 1939.

more severe and persistent, roentgen studies of the gastrointestinal tract were performed. A barium enema, gastrointestinal and gallbladder series of roentgen examinations were all negative. On physical examination, the liver appeared enlarged and its edge firm and sharp. The left lobe occupied the hypochondrium, and attached to it was a large, easily palpable nodular mass which projected downward and to the right of the midline. There was no jaundice or enlargement of the superficial lymph nodes. The extremities appeared thin, but the patient was not aware of any weight loss.

TABLE 1.—*Liver Function Tests*

	May 1946	May 1948
Sulfobromophthalein sodium excretion	Neg. after 30 min.	.....
Cephalin flocculation	Neg.	2+
Cholesterol	330 mg./100 cc.	.....
Cholesterol ester	200 mg./100 cc.	.....
Urea nitrogen	15 mg./100 cc.	15 mg./100 cc.
Creatinine	1.2 mg./100 cc.	.....
Dextrose	90 mg./100 cc.	94 mg./100 cc.
Total protein	8.4 Gm./100 cc.	7.6 Gm./100 cc.
Albumin/globulin ratio	5.03/3.05 Gm./100 cc.	3.9/3.4 Gm./100 cc.
Phosphorus	3.1 mg./100 cc.	3.8 mg./100 cc.
Alkaline phosphatase	5.6 units	9.23 units
Prothrombin time	21.5 sec.	.....
Stool	Bile present; neg. blood	4+ guaiac

The clinical diagnosis was carcinoma of the liver, either primary or metastatic from some unknown source. The possibility that the hepatic enlargement had resulted from metastasis from the tumor removed twenty-three years before seemed remote. The prognosis was considered hopeless, and it was not expected that the patient would survive long. The patient was treated symptomatically with the administration of concentrated protein preparations, vitamins and liver extract and with a low fat, high carbohydrate and high protein diet; for a year there was no progression of symptoms or signs other than an increase in the size of the hepatic mass. Because of this unusual and unexpected clinical course, she was hospitalized on May 19, 1946 at the Beth David Hospital for further clinical study.

At this time the enlargement of the liver was the only positive objective observation other than a mild degree of malnutrition. Results of complete laboratory study and roentgenographic examination of the chest, skeleton, gastrointestinal tract and gallbladder were within normal limits and did not reveal the existence of any neoplasm other than that palpated in the liver. Various tests, as shown in table 1, revealed remarkable preservation of liver function.

TABLE 2.—*Laboratory Data*

	Blood					
	Hb.	R.B.C. (Mil.)	W.B.C.	Sed. Rate*	Roentgen Studies†	Urine
May 1945	.....	.....	.....	.....	Negative	0
Jan. 1946	78%	3.9	9,450	24 min. : 18 mm.	.....	..
May 1946	84%	4.08	6,350	.....	Negative	0
Oct. 1946	.....	.....	.....	32 min. : 18 mm.	.....	..
April 1947	.....	.....	.....	34 min. : 18 mm.	.....	..
Nov. 1947	.....	.....	.....	28 min. : 18 mm.	.....	..
Feb. 1948	80%	3.8	10,300	19 min. : 18 mm.	.....	Alb. 3+; casts
April 1948	.....	.....	.....	17 min. : 18 mm.	.....	..
May 1948	58%	3.13	10,900	14 min. : 18 mm.	Esophageal varices; slight right pleural effusion	0
June 1948	33%	1.76	18,400			

* The sedimentation rate was determined by the Linzenmeier method.
† Barium enema, gastrointestinal tract, gallbladder and lungs.

On May 20, 1946 with the patient under local anesthesia a liver biopsy specimen was secured through a small laparotomy incision. The liver was found to be enormously enlarged, and except for the large, irregular, gray-white tumor mass in the left lobe the surface of the organ appeared smooth. Biopsy showed "extensive replacement by adenocarcinoma."

The patient was treated palliatively with a regimen usually employed for cirrhosis of the liver. She was given a high protein, high carbohydrate, low fat diet with large amounts of vitamins and choline. Testosterone propionate was also given because of the possibility that the primary site of the tumor might be in the ovary and because of its possible anabolic effect.

After discharge of the patient from the hospital on May 27, 1946 she continued to work as a seamstress and manage her home for another two years without any pronounced change in her condition. She lost only 4 pounds (1.8 Kg.) during the three year period between the discovery of the hepatic tumor and her death. The only abnormal result of laboratory tests during this three year period was an acceleration of the erythrocyte sedimentation rate, which became increasingly rapid, as indicated in table 2. The only other abnormal physical change was a gradual progression of the enlargement of the liver.

In May 1948 the patient's condition suddenly became worse. There developed severe weakness, which did not improve with treatment. Her stools became tarry, and the guaiac test was strongly positive. She was readmitted to Beth David Hospital on May 17, 1948. Roentgen studies confirmed the diagnosis of esophageal varices. Eight days after admission she vomited 300 cc. of bright red blood. Despite seven transfusions, three severe episodes of hematemesis almost exsanguinated her. Her condition remained critical for the next eight days, after which she became comatose and manifested a terminal pyrexia. On June 5, 1948, two days after the onset of coma, she died in pulmonary edema.

Vertical section through liver, showing en bloc metastasis.

Necropsy.—Necropsy performed two hours post mortem revealed extreme pallor of the skin and mucous membranes, with dark red blood oozing from the mouth and nose. The abdominal wall was thin, with an old laparotomy scar in the left upper quadrant and a more recent surgical scar in the right upper quadrant. There was considerable wasting of the subcutaneous fat. The abdominal cavity contained 2 liters of clear ascitic fluid, and the peritoneum was everywhere smooth and glistening. The liver, which was greatly enlarged, filled the epigastrium, extending 10 cm. below the right costal margin. The lower pole of the spleen projected 4 cm. below the costal margin. The diaphragm on each side was at the level of the fifth rib. Each pleural cavity contained a small amount (150 cc.) of clear serous fluid. There were a few bandlike adhesions between the lungs and the parietal pleura. Both lungs were heavy and edematous, containing aspirated blood in the parenchyma and in the bronchi. The heart (weight 260 Gm.) was normal except for dilatation of the chambers and pallor of the myocardium. Atherosclerosis of the coronary arteries was slight.

The liver was decidedly enlarged and deformed by the presence of a firm, large, nodular tumor mass, which occupied the central portion of the organ, bulging through and protruding above the anterior and inferior surfaces and extending downward as a blunt, thick prolongation below the inferior margin. A large portion of the liver parenchyma was replaced by the tumor, which laterally and superiorly was surrounded by a

fairly thick margin of compressed and fibrosed but otherwise uninvolved liver tissue. The liver was pinkish brown, and its surface was fairly smooth. The tumor was light gray. A frontal section passing through the liver and the largest plane of the tumor revealed the cut surface of the latter to be 25 cm. long and 18 cm. wide. The greatest thickness of the tumor was 10 cm. The rim of hepatic tissue surrounding it was 3 to 10 cm. thick (figure). The tumor was not adherent to any surrounding structures in the abdominal cavity. Its central portion was partly necrotic. The gallbladder was normal in size; the cystic, hepatic and common bile ducts were patent and not obstructed. The extrahepatic portion of the portal vein was not occluded or unusually thickened or dilated. The frontal section revealed that slightly more than one half of the tumor lay within the liver, the remainder projecting inferiorly from it. The spleen was slightly enlarged and weighed 225 Gm.; its consistency was firm, and on section the pulp was red-fish gray and the trabeculations prominent. The pancreas, adrenals, kidneys, urinary bladder and reproductive organs were normal except for pallor. Examination of the gastrointestinal tract revealed conspicuous varices in the lower segment of the esophagus; a small rupture was found in one of the varices near the cardiac end of the stomach. The latter and the small intestines were filled with a large amount of fluid and clotted blood. Tarry feces were found in the large intestines.

Examination of the descending colon did not reveal the site of the old sigmoid resection and anastamosis. Several small sessile polyps occurring singly and in small groups were found in the mucosa of the ascending colon just beyond the ileocecal valve; the largest agglomeration of these polyps was up to 3 cm. in diameter. There were also many single mucosal polyps scattered throughout the remainder of the large intestine, none of these polypoid tumors showing evidence of carcinomatous transformation. The submucosal layers in these lesions were intact and not adherent to the subjacent intestinal wall. Careful search of the descending colon did not reveal any residual or recurrent carcinoma. The rectum appeared normal. The retroperitoneal, periaortic and perihepatic lymph nodes were enlarged up to 4 cm. in their largest dimension. On section they were firm and extensively replaced by tumor tissue, similar to that found in the liver. There were no enlarged lymph nodes in any portion of the pericolic fat. Section of the lumbar spine did not reveal any bony metastases.

Death had resulted from exsanguination into the gastrointestinal tract from a ruptured esophageal varix. Histologic examination of the tumor mass in the liver and lymph nodes revealed a well differentiated adenocarcinoma, the pattern of which was similar to that of the tumor of the sigmoid colon resected twenty-six years previously. Sections of many of the mucosal polyps in the colon, including those in the clustered formations, did not reveal any evidence of carcinomatous transformation.

The other tissues did not reveal any significant abnormalities. Necropsy did not reveal any new primary tumor or local recurrence at the site from which the carcinoma of the colon was originally resected twenty-six years before death. A number of mucosal polyps were found in the colon, but a careful gross study of all polyps and a histologic study of many of them did not reveal any evidence of carcinomatous transformation. The sections of the original adenocarcinoma of the sigmoid removed in 1922, obtained from the St. Luke's Hospital, were similar histologically to the adenocarcinoma found in the biopsy and at autopsy.

COMMENT

A review of reports in the literature [4] reveals variations in the incidence of carcinomatous transformation of the lesions of polyposis of the colon ranging from 5 to 85 per cent. Swinton and Warren [5] did point out that the size of the polyp alone is not an accurate index of a carcinomatous transformation, and also that an exceedingly small primary malignant growth in the intestine, including those arising by malignant transformation of a polyp, can give rise to gigantic enlargement of the liver by rapid metastatic involvement. But there are no reports of proved massive liver metastasis of at least three years' duration in which an undisturbed primary tumor in the colon had remained insignificant in size. It is highly unlikely that any new primary carcinomatous source of the liver metastasis would have remained entirely quiescent and small during a period of more than three years while a solitary hepatic metastasis grew to enormous size.

Smith [4b] and Felsen have described cases of intestinal polyposis in which patients who have had repeated operations for the removal of multiple successive carcinomas arising in polyps have lived eight years or more after the initial operation.

Late metastasis without local recurrence often occurs, especially in cancer of the thyroid, carcinoma of the kidney and malignant melanoma. Brunschwig and Morton [6] have expressed their belief that this phenomenon is related to the slow growth of certain neoplasms and also to the problem of immunity to cancer. Brunschwig described a patient who had had an enucleation of the eye for melanoma twenty-five years before symptoms developed which led in only six months to his death from generalized melanosarcoma. During the long interval he had remained well and active. Some factor, as yet unknown, apparently held in check for many years the growth and dissemination of the metastases.

In the case we report the circumstances are somewhat different, not only in that the metastasis appeared late in the course of the neoplastic disease, but also in that its growth, both intrahepatic and extrahepatic, was unusually slow after it was discovered. The large, slowly growing metastasis in the liver was known to have been in existence for at least three years prior to death. It eventually replaced about 40 per cent of the liver substance and produced a secondary cirrhosis without any appreciable disturbance in liver function. The pressure of the tumor mass gradually impeded the portal circulation and caused mild ascites, pleural effusion and the development of esophageal varices. Fatal massive hemorrhage into the gastrointestinal tract resulted from rupture of a varix.

The sequence of events is consistent with the clinical phenomenon in which the invasion of the liver by a gradually enlarging solitary metastatic carcinoma is not accompanied with a proportional disturbance in liver function or with bodily disability despite the increasing size of the lesion and the extensive replacement of hepatic parenchyma.

A slowly growing, solitary, massive type of metastatic carcinoma, because it is localized in one portion of the liver, may permit compensatory function of the uninvolved parenchyma. In this case only half of the massive metastasis was actually in the liver substance; hence, a considerable volume of liver tissue remained uninvolved and unaffected. The value of the therapeutic regimen is entirely speculative. It is not likely

4. (*a*) Lawrence, J. C.: Gastrointestinal Polyp; Statistical Study of Malignancy Incidence, Am. J. Surg. **31**: 499 (March) 1936. Hullsiek, H. E.: Multiple Polyposis of the Colon, Surg., Gynec. & Obst., **47**: 346 (Sept.) 1928. (*b*) Smith, N. D.: Polypoid Disease of the Colon and Terminal Ileum: Observation of a Case for Eight Years, Proc. Staff Meet., Mayo Clin., **14**: 255 (April 19) 1939. FitzGibbon, G., and Rankin, F. W.: Polyps of the Large Intestine, Surg., Gynec. & Obst., **52**: 1136 (June) 1931. Coller, F., and Berry, R.: Cancer of Colon, J. A. M. A. **135**: 1061 (Dec. 20) 1947.

5. Swinton, N. W., and Warren, S.: Polyps of the Colon and Rectum and Their Relation to Malignancy, J. A. M. A. **113**: 1927 (Nov. 25) 1939.

6. Brunschwig, A., and Morton, D. R.: Resection of Abdominal Carcinomas Involving the Liver and Spleen Secondarily, Ann. Surg., **124**: 746 (Oct.) 1946.

that anything beyond supportive benefit was obtained by the measures used.

The question of surgical intervention in cases like the one reported here has been raised by Brunschwig. He has observed some patients who have survived for relatively long periods after one or more hepatic metastases were discovered and left undisturbed at the time of palliative resection of a primary tumor. In the light of the clinical and pathologic factors observed of this case, it would seem advisable in tumors of the liver to perform an exploratory laparotomy rather than to depend on a small incisional or needle punch biopsy. In this way occasional resectable tumor nodules in the liver would not be overlooked. Had the tumor mass in this case been considered resectable and then removed successfully, the subsequent three year survival period might have been mistakenly interpreted as the result of the surgery and not of the natural course of the disease.

SUMMARY

A case is reported in which a survival of twenty-six years and two months followed the resection of an adenocarcinoma of the sigmoid colon. A slowly growing solitary liver metastasis was discovered at least three years prior to the death of the patient. Except for the large solitary hepatic metastasis and metastases in the perihepatic and periaortic lymph nodes, necropsy did not disclose any other primary neoplasm or any evidence of recurrence of the original tumor. The patient was never invalided by the long course of the neoplastic disease; she died of massive hemorrhage into the gastrointestinal tract from the rupture of an esophageal varix, which had developed as the result of portal obstruction produced by the pressure of the liver metastasis.

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PROBABLE TRANSMISSION OF VIRAL HEPATITIS BY ULTRAVIOLET-IRRADIATED PLASMA

Report of Three Cases

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In November 1948 a study was undertaken to determine the effect of large and frequent phlebotomies followed by plasma infusions in cases of polycythemia vera. It was hoped that a reduction in blood volume with relief of symptoms could be accomplished more rapidly in this fashion and with a minimal disturbance in circulatory dynamics. It was further anticipated that β_1 globulin depletion and the chlorotic anemia that may occur after repeated phlebotomies might be prevented.

It was recognized at the onset that the infusion of untreated plasma was accompanied with the danger of transmitting viral hepatitis. Because of previous reports [1] of the protective action of ultraviolet irradiation, only plasma which had been subjected to ultraviolet irradiation was used.

Thirteen patients in all were treated in this fashion but, despite all precaution, 2 of the patients became jaundiced between three and four months after receiving irradiated plasma. In a third case, jaundice developed in a hospital patient seventy-one days after he received blood from 1 of the polycythemic patients who received plasma but never manifested any evidence of viral hepatitis.

Laboratory Data in Case 2

	Cephalin Flocculation	Icterus Index
3/25/50	4+	60
4/ 1/50	3+	50
4/ 8/50	4+	9
4/15/50	4+	5

REPORT OF CASES

CASE 1.—K. R., a woman aged 47, was found to have polycythemia vera at 30 years of age. During the subsequent years she was treated with phlebotomies, radiotherapy, acetylphenylhydrazine and radioactive phosphorus. During a hospital admission in 1948 for bleeding peptic ulcer, her liver was found to be enlarged to 2 fingerbreadths below the costal margin; the spleen was 1 fingerbreadth below the costal margin. All liver function tests gave negative results except a cephalin flocculation, which gave a 3 plus reaction but which became negative. Four months prior to the present admission (Feb. 21, 1950) the hemoglobin and red blood cells increased considerably. On Nov. 10, 1949 phlebotomy was performed and 500 cc. of blood removed, following which the patient received 1 unit of ultraviolet-irradiated plasma. She was comparatively comfortable until one month prior to admission, at which time she began to experience pains in the splenic region. On admission she appeared moderately plethoric. The liver was 2 fingerbreadths below the costal margin and the spleen 6 fingerbreadths below and moderately tender.

Course in Hospital.—On admission, she was febrile, and hematologic findings were compatible with an early leukemic phase of polycythemia vera.[2] She was given radiation to the splenic area with relief of pain. Jaundice was first noted on March 14, 1950, one hundred and twenty days after she received the plasma infusion. The jaundice deepened progressively, but the patient remained comfortable. On April 7, the jaundice began to subside and was completely cleared by May 1. Her subsequent course was that of the underlying disease.

Comment.—The jaundice in this case appeared one hundred and twenty days after the administration of plasma. The clinical course and laboratory findings were compatible with those seen in viral hepatitis.

CASE 2.—M. P., a woman aged 60, was an ambulatory patient seen on Dec. 3, 1949. The results of blood examination led to the diagnosis of polycythemia vera. On the same day phlebotomy was performed and 1,000 cc. of blood was drawn; this was immediately replaced with 2 units of plasma. On March 19, 1950, one hundred and six days after receiving the plasma, she became jaundiced. No other symptoms were observed except apprehension.

On March 25 the results of the cephalin flocculation test showed 4 plus. The icterus index (acetone method) was 60. The jaundice began to clear rapidly after this date, and on April 8 the icterus index was 9, as shown in the table.

Comment.—Jaundice developed in this patient one hundred and six days after she received plasma. In view of this history and the clinical course, viral hepatitis was considered the most probable diagnosis, with the plasma as the source of the causative agent.

CASE 3.—I. S., a man aged 66, was admitted to the private service of Drs. Harry Weiss and A. Hyman on Jan. 1, 1950 for a one stage prostatectomy, which was performed on January 5. At the time of operation, he received 500 cc. of

Dr. Michael is Sarah Welt Fellow in Medicine.
From the Second Medical Service and Hematology Division of the Laboratories of the Mount Sinai Hospital.

1. Wolf, A. M.; Mason, J.; Fitzpatrick, W. J.; Schwartz, S. O., and Levinson, S. O.: Ultraviolet Irradiation of Human Plasma to Control Homologous Serum Jaundice, J. A. M. A. **135**:476 (Oct. 25) 1947.

2. Rosenthal, N., and Bassen, F. A.: Course of Polycythemia, Arch. Int. Med. **62**: 903 (Dec.) 1938.

3. Deleted in proof.

4. Deleted in proof.

blood which had been drawn from another patient on the previous day. The postoperative course was uneventful and the patient was discharged on January 21. On March 17, seventy-one days after transfusion, painless jaundice developed. The liver function tests performed revealed the presence of hepatocellular disease. The patient's course was uneventful; jaundice subsided rapidly.

Comment.—Jaundice developed in this patient seventy-one days after he received blood from a donor who had received several infusions of irradiated plasma. The history and clinical course indicated the most probable diagnosis was viral hepatitis. This patient received no other blood or blood products but had received hypodermic injections of penicillin, morphine and insulin. He had also been given intravenous infusions of dextrose and saline solution.

GENERAL COMMENT

During the period of study, 13 patients with polycythemia had phlebotomies, and 33 units of plasma were administered. One unit was given in case 1 and 2 units in case 2. Jaundice developed in one hundred and twenty and one hundred and six days respectively. The powdered preparation was given in case 1 and the liquid form in case 2. The powdered form is made available for use by restoring it to a liquid state by a diluent of distilled water specially prepared by the manufacturer. Jaundice did not develop in the donor in case 3, but his blood was used for transfusion in a patient who became jaundiced seventy-one days later. This patient with polycythemia had 7 units of plasma of both the powdered and liquid form. He himself at no time had any symptoms suggestive of viral hepatitis. The results of his cephalin flocculation test at the time he was suspected of transmitting the disease showed 4 plus. All other liver function tests were negative. Subsequently, 20 patients with polycythemia who at no time received plasma had cephalin flocculation tests made. Fifteen of these gave a 4 plus result. This would indicate that the positive test in the polycythemic patient who received the plasma is of doubtful significance.[5] All of the bloods drawn in this case were used for transfusions. Except for the recipient I. S. none developed jaundice. This would suggest that if the plasma was responsible it was probably the unit administered before the last phlebotomy. This recipient had other parenteral medication but only one transfusion and no other blood products.

Many of the other polycythemic bloods were used for transfusion purposes, but no other case of jaundice developed. In case 2 the bloods were discarded. In case 1 the recipient did not develop jaundice, but it must be noted that the plasma infusion was not begun until all the blood was withdrawn. In all cases the blood was withdrawn in the routine blood bank manner.

It is, of course, well known that viral hepatitis may be transmitted in many ways.[6] The possibility of contaminated needles in any procedure may be responsible. All needles in the cases herein described were autoclaved. This is the method of sterilization advocated for the destruction of the virus.[7] During the period of this study no blood or blood product other than irradiated plasma was received by any of the polycythemic patients. Although it is possible that viral hepatitis may occur spontaneously, it seems more than coincidence that in a small series of 13 cases this condition should develop in 2 in what is considered the accepted incubation period and that a third case should be the most probable source of transmission. It is true that jaundice has developed on rare occasions spontaneously in cases of polycythemia, but its occurrence seems no greater than that seen in the general population. It is of interest that during the course of this study not a single case of jaundice was seen among approximately 150 patients with polycythemia being followed in the hematology clinic and in our private practice. The great majority of these patients are being treated with radioactive phosphorus, although, in addition, many have had simple phlebotomies.

If one accepts the very strong evidence that the plasma infusions were responsible, one simultaneously challenges the effectiveness of ultraviolet irradiation as a sterilizing technic. The reports of Oliphant,[8] Oliphant and Hollaender,[9] and Blanchard and co-workers[10] offer striking evidence that volunteers who received icterogenic plasma or serum which had been irridiated by ultraviolet rays were protected as compared with a control group who received untreated plasma or serum. These volunteers received very small quantities, often no more than 0.5 cc. That this fact may be important was noted in the report of Oliphant and Hollaender, who stated, "It is possible of course that the factors of titer of the icterogenic agent and the dose of serum given would have an influence upon the icterogenic capacity of the irradiated material." In a report by MacCallum[11] it was indicated that even with small doses complete protection cannot be guaranteed, as 1 of 10 volunteers became jaundiced after receiving treated serum.

The incidence of hepatitis following infusions of untreated plasma has been reported by Havens as being as high as 8 to 16 per cent.[12] Its occurrence following infusions of therapeutic quantities of treated plasma has not been reported, to our knowledge. The possibility that it may have occurred and have been attributed to other causes has to be considered in view of the fact that patients receiving plasma often receive blood and a variety of other parenteral medication. The tendency would probably be to attribute the jaundice to anything but the treated plasma. The situation in 2 of our cases was unique in that nothing else was given to the patients on which to lay the blame. In case 3, in which jaundice was not observed in the donor, the point that some persons act only as reservoirs has to be stressed.

It has been assumed that the sterilization technic is uniform in preparing the plasma, but the possibility that something may have gone amiss in a given batch must be considered. This possibility cannot be dismissed with certainty on the basis of this report, but the fact that 2 of the patients in whom clinical hepatitis developed had received different types of plasma from different sources makes this seem unlikely.

It is neither the purpose nor within the scope of this report to present anything more than the facts as they

5. The cephalin flocculation test in this patient ultimately became negative. In view of this fact it must be seriously considered that he may have had a mild form of hepatitis without jaundice.

6. Neefe, J. R.: Viral Hepatitis, New England J. Med. **240**: 445 (March 24) 1949.

7. Salaman, M. H.; King, A. J.; Williams, D. I., and Nicol, C. S.: Prevention of Jaundice Resulting from Antisyphilitic Treatment, Lancet **2**: 7 (July 1) 1944.

8. Oliphant, J. W.: Jaundice Following Administration of Human Serum, Bull. New York Acad. Med. **20**: 429 (Aug.) 1944.

9. Oliphant, J. W., and Hollaender, A.: Homologous Serum Jaundice: Experimental Inactivation of Etiologic Agent in Serum by Ultraviolet Irradiation, Pub. Health Rep. **61**: 598 (April 26) 1946.

10. Blanchard, M. C.; Stokes, J., Jr.; Hampil, B.; Wade, G., and Spizizen, J.: Methods of Protection Against Homologous Serum Hepatitis: Inactivation of Hepatitis Virus SH with Ultraviolet Rays, J. A. M. A. **138**: 341 (Oct. 2) 1948.

11. MacCallum, F. O.: Homologous Serum Hepatitis, Proc. Roy. Soc. Med. **39**: 655 (Aug.) 1946.

12. Havens, W. P.: Viral Hepatitis—Progress and Problems, Pennsylvania M. J. **52**: 1653 (Dec.) 1949.

occurred. There is no doubt that the incidence of viral hepatitis has risen sharply with the increased widespread use of blood and blood products. That it may occur spontaneously and that it could have occurred spontaneously in the cases herein described is within the realm of possibility. In the realm of probability, however, the evidence at hand indicates strongly that the treated plasma was responsible.

SUMMARY

Clinical evidence that viral hepatitis may be transmitted by ultraviolet-irradiated plasma was obtained during a study of the therapeutic value of phlebotomies with plasma replacement in cases of polycythemia vera.

Two cases are described in which jaundice appeared one hundred and six and one hundred and twenty days after the intravenous infusion of ultraviolet irradiated plasma. A third case is described in which jaundice developed seventy-one days after transfusion from a donor who had received irradiated plasma.

HEPATITIS FOLLOWING THE USE OF IRRADIATED HUMAN PLASMA

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There is abundant evidence that human plasma may transmit a virus causing hepatitis. No known method of excluding donors or treating whole blood is capable of eliminating this virus. Healthy carriers exist. We studied one such donor who transmitted the virus to 2 patients in a six months' interval yet who gave no history or clinical or laboratory evidence of any liver disease.

In the hope of making plasma, at least, free of virus, irradiation with ultraviolet rays has been employed. In the basic work done by Blanchard and co-workers,[1] the following experiment was done: Portions of the same known icterogenic plasma, some irradiated and some untreated, were injected into volunteers. Of 15 volunteers receiving 4 cc. of untreated plasma intramuscularly, overt or presumptive hepatitis developed in 7. Of 11 volunteers receiving 7 cc. of irradiated plasma, none showed clinical or laboratory evidence of the disease.

On the basis of this work almost all commercially available plasma is now irradiated. There have been no published reports of hepatitis following such injections. This may be due in part to a marked general decrease in utilization of plasma. For example, at the Norwalk Hospital in 1946, 312 units of plasma were administered; by 1949 the yearly consumption had fallen to 126 units. That even irradiated plasma may not be uniformly free of hepatitis virus is suggested by the following cases.

REPORT OF CASES

Case 1 (from the Park City Hospital, Bridgeport, Conn.).—F. S., a white man aged 58, was given 1 unit (250 cc.) of irradiated plasma (Sharp and Dohme) on June 24, 1949 for the treatment of shock due to coronary occlusion with myocardial infarction. Symptoms of malaise and jaundice began eight weeks later, followed by clay-colored stools and bloody diarrhea. At operation in October bile-stained ascitic fluid and a shrunken nodular liver were found. Biopsy done at this time was reported to show subacute hepatitis (fig. 1). The patient had a stormy postoperative course with disorientation and recurrent ascites but finally improved and went home. Severe myocardial decompensation developed, and the patient died March 10, 1950, approximately seven months after onset of the hepatitis and five months after clinical recovery therefrom. At autopsy there was massive myocardial infarction and pulmonary edema. The liver weighed 1,460 Gm. and the spleen 400 Gm. There was coarse nodularity of the liver, most prominent along the free border. There was no jaundice. There was striking postnecrotic fibrosis in the microscopic sections of the liver (fig. 2) and hyperplasia of the pulp in sections of the spleen.

Case 2 (from the Northern Westchester Hospital, Mount Kisco, N. Y.).—N. S., a white man aged 80, was admitted Jan. 31, 1950 with severe abdominal pain of seven days' duration. The clinical diagnosis was ruptured appendix, for which emergency operation was done. One unit (250 cc.) of irradiated plasma (Sharp and Dohme) was given to combat shock. After a stormy postoperative course he was discharged Feb. 12 in good condition. He continued to improve at home and was able to take short walks each day. On March 17 he complained of malaise, weakness and anorexia, which became progressively worse. On March 19 his scleras were icteric and his urine bile stained. His skin rapidly became jaundiced and his general condition worse. He was readmitted March 21, in a toxic, dehydrated state. Laboratory tests showed serum bilirubin, direct reacting, 25.6 milligrams per hundred cubic centimeters; cephalin-cholesterol flocculation, 4 plus at twenty-four hours; alkaline phosphatase, 9.0 King-Armstrong units; urine bilirubin, 4 plus, and urobilinogen, a trace. The clinical diagnosis was homologous serum jaundice. The patient's condition remained critical; the jaundice continued to deepen, and the patient died on March 31.

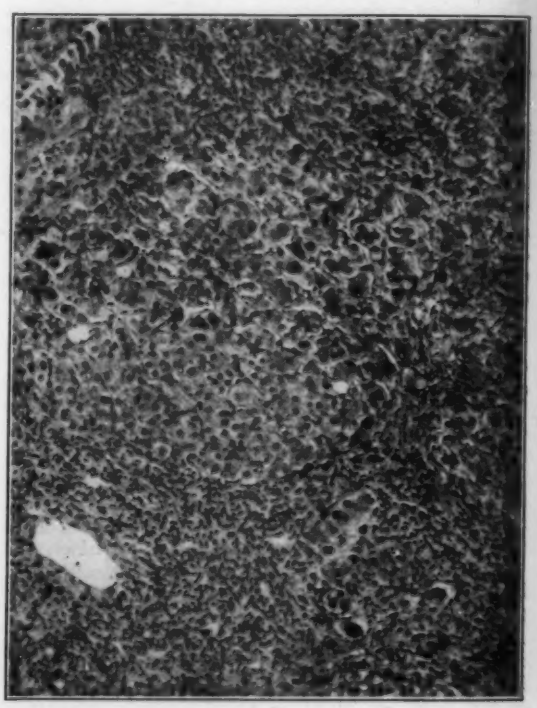

Fig. 1 (case 1).—Liver biopsy. Distortion of architecture and marked exudate in connective tissue (× 93, enlarged from 35 mm. negative).

From Norwalk Hospital and the Department of Pathology, Yale University School of Medicine (Dr. Barnett); from Northern Westchester Hospital (Dr. Fox), and from Stamford Hospital (Dr. Snavely).

1. Blanchard, M. C.; Stokes, J., Jr.; Hampil, B.; Wade, G. R., and Spizizen, J.: Methods of Protection Against Homologous Serum Hepatitis: The Inactivation of Hepatitis Virus SH with Ultraviolet Rays, J. A. M. A. 138:341 (Oct. 2) 1948.

At autopsy there was marked edema of the scrotum and lower extremities. The peritoneal cavity contained approximately 500 cc. of icteric fluid. The liver weighed 1,400 Gm. The external and cut surfaces had a mottled reddish brown appearance, and the consistency was considerably softer than usual. On microscopic examination diffuse necrosis was found

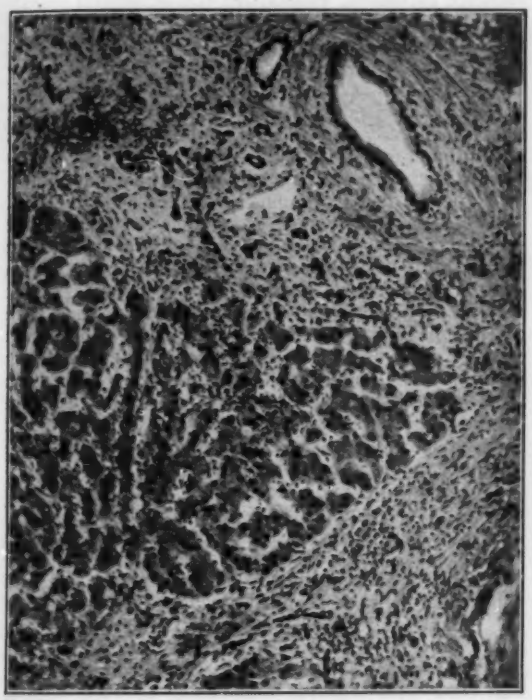

Fig. 2 (case 1).—Liver section from autopsy. Bands of connective tissue separating remaining lobular elements. Proliferation of small bile ducts. Inflammatory cells now scarce (× 93, enlarged from 35 mm. negative).

(fig. 3). This involved almost all the liver tissue, although in some areas a few periportal hepatic cells were preserved. A few mononuclear cells were present.

CASE 3 (from the Northern Westchester Hospital, Mount Kisco, N. Y.).—E. L. R., a white man aged 22, was admitted to the hospital on Feb. 3, 1950 after an automobile accident. On admission he was unconscious and bleeding from a laceration of the forehead and left ear. Three hours later his blood pressure fell to 100 systolic and 60 diastolic, and 1 unit (250 cc.) of irradiated plasma (Sharp and Dohme) was administered prior to débridement of the lacerations. Forty-eight hours after admission he was able to recognize members of his family. Thereafter he improved markedly and was discharged February 18.

On March 25 he was admitted to the United Hospital, Port Chester, N. Y., complaining of nausea of one week's duration and jaundice of four days' duration. On examination there was jaundice. The tender liver was palpated 3 fingerbreadths below the right costal margin; the spleen could also be felt. Laboratory examinations showed urine bilirubin 3 plus and urobilinogen positive in 1 to 10 dilution; icterus index 66 units; serum bilirubin, direct reacting 13.2 mg. per hundred cubic centimeters and indirect 6.8 mg., and cephalin-cholesterol flocculation 4 plus at twenty-four hours. Temperature reached 103.2 F. on the fifth and sixth days of hospitalization. Thereafter, vital signs and laboratory values improved rapidly. He was discharged May 2, at which time the liver was no longer enlarged but was slightly tender.

COMMENT

In view of the clinical course, the laboratory findings, the respective incubation periods of fifty-six, forty-five and forty-three days and the autopsy findings in 2 cases, it is our opinion that these patients suffered from homologous serum jaundice. Since they received no hepatotoxic drug or any potential source of hepatitis virus other than a single unit (250 cc.) of irradiated plasma (Sharp and Dohme [2]), it seems reasonable to indict the plasma as the vehicle for the virus. Although isolated reports have appeared in the literature implicating hypodermic needles or implements used for finger pricking to obtain blood samples, we feel that such extraneous vehicles are unlikely in our cases. Almost all patients in the affected hospitals undergo needle pricks and injections of some kind, yet no cases of homologous serum hepatitis not attributable to blood or blood products have been noted. Furthermore, in the Northern Westchester Hospital all needles and syringes, even those used for finger pricks, are dry heat sterilized at 145 C. for thirty minutes. Because the two hospitals in which our cases occurred use very little irradiated plasma, only 30 units in the year Jan. 1, 1949 through Dec. 31, 1949, no statistical analysis is warranted, but the figures indicate an obvious hazard in the use of this product.

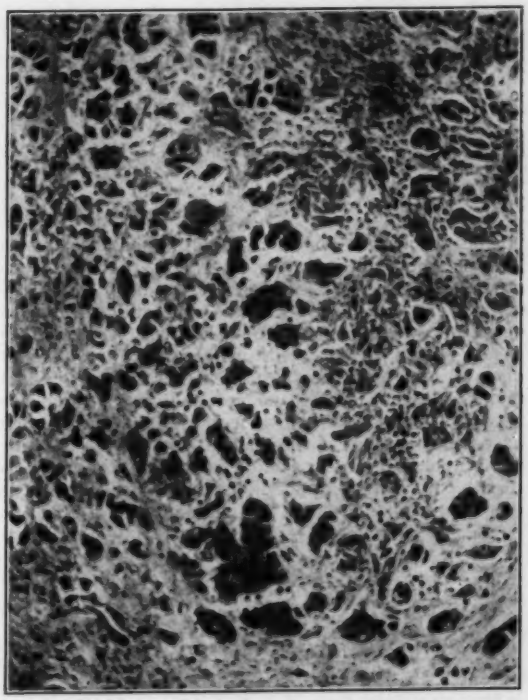

Fig. 3 (case 2).—Liver section from autopsy. Extensive necrosis; almost no viable liver cells remain (× 93, enlarged from 35 mm. negative).

There are several possible reasons for the discrepancy between the experimental results of Blanchard [1] and the occurrence of hepatitis following the use of commercially irradiated plasma. Among these are the following: 1. Large scale irradiation and subsequent storage may not simulate the smaller scale experiments.

2. No other commercial plasma was used in these hospitals.

2. The amount of plasma commonly administered in practice (250 cc. or more) is far larger than that used in the experiments (7 cc.). 3. Irradiation may be ineffectual and the experimental results fortuitous because of the small number of subjects employed. 4. There may be several strains of virus not equally affected by ultraviolet irradiation.

In view of the cases reported, it is apparent that irradiation of plasma as currently practiced does not offer certain protection of the recipient against serum hepatitis. It is suggested that, until some effective means of destroying the virus in plasma is found, the hazards be minimized by the abandonment of large plasma pools and the most careful screening of donors by history and determination of the serum bilirubin. Furthermore, since even these measures cannot be completely effective, the use of salt-poor human albumin, which in most instances is equally effective therapeutically and can be freed of the virus,[3] is suggested.

SUMMARY AND CONCLUSIONS

Three cases of severe hepatitis, 2 of them fatal, are reported following the administration of commercially irradiated human plasma. The hazards in the use of this material and methods of minimizing or obviating them are discussed.

HOMOLOGOUS SERUM JAUNDICE ASSOCIATED WITH USE OF IRRADIATED PLASMA

A Preliminary Report

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The problem of homologous serum jaundice, which first became evident during World War II, has been studied extensively. A number of studies [1] have variously estimated the attack rate from this disease in recipients of unirradiated pooled human plasma during the six month period after transfusion to be from 4.5 per cent to 11.9 per cent. On the other hand, Oliphant and co-worker [2] and Blanchard and associates [3] have reported favorably on the value of ultraviolet irradiation as a method of sterilizing human plasma and thereby preventing the transmission of homologous serum jaundice. In contrast, MacCallum,[4] in two experiments employing a less refined irradiation technic, failed to inactivate this virus in human serum. Since April 1949, the National Institutes of Health have required the irradiation of human plasma as a prerequisite to licensing manufacturers.[5] Neefe,[6] in critically evaluating the evidence available for the effectiveness of this procedure in preventing the transmission of homologous serum jaundice by plasma, emphasized that successful experimental work to date has dealt with only one strain of homologous serum jaundice virus which, in turn, seems to be one of the less virulent strains known.

This preliminary report deals with an outbreak of apparent homologous serum jaundice consisting of at least 10 clinically typical icteric cases among 20 persons known or presumed to have received irradiated human plasma from a single commercial lot. To our knowledge, this is the first published evidence of this sort. Eight of these patients are definitely known to have received plasma from this lot. The other 2 patients are presumed to have received plasma from this lot (even though their hospital records failed to indicate the lot number of the plasma administered), since they were given transfusions during a period when the lot in question made up about half the available plasma supply in the hospital blood bank. Each patient is known to have received, as well, whole blood from one or more donors; however, none of these donors contributed blood to more than one of the patients, and none gave a history of prior or subsequent hepatitis. Two additional cases of homologous serum jaundice, possibly attributable to either whole blood or different lots of irradiated plasma, have also been discovered at the same hospital. In these 12 known cases, 8 patients were either still in the hospital or had been readmitted with hepatitis to the same hospital in which they had received the plasma originally. This hospital has used commercial irradiated plasma exclusively since April 1949, and these represent the first patients admitted since that time with hepatitis attributable to such plasma. The pertinent data relating to the outbreak are listed in tables 1 and 2. The incriminated lot is coded as "D."

Incubation periods among those patients known to have received lot D range from 48 days (in the patient receiving 1,750 ml. of the suspected plasma) to 108 days. In 2 other cases (6 and 11), in which lot D was probably administered, the incubation periods were 54 and 63 days, respectively. In cases 1 and 3, in which lot D definitely had not been given, but in which transfusions with other irradiated plasma lots as well as whole blood had been used, the incubation periods were 107 and 90 days. The only apparent common factor which can explain adequately the outbreak of 10 cases is the transfusion in 8, and possibly 10, clinical cases of the disease (attack rate at least 8/18 = 44.5 per cent or 10/20 = 50.0 per cent) with portions of a single lot of commercial irradiated human plasma. None of the patients had a prior history of exposure to hepatitis and no secondary outbreaks have been noted since in their associates. The spacing of the periods of hospitalization and the scattered ward distribution of these patients argue strongly against the operation of any other common factor in transmission. The disease was generally mild, and the only fatality (case 10) was a man of 92, who had serious decubitus ulcers and other postoperative complications. Clinical and laboratory evidence of jaundice and hepatic dys-

3. Gellis, S. S.; Neefe, J. R.; Stokes, J., Jr.; Strong, E.; Janeway, C. A., and Scatchard, G.: Chemical, Clinical and Immunological Studies on the Products of Human Plasma Fractionation: Inactivation of the Virus of Homologous Serum Hepatitis in Solutions of Normal Human Serum Albumin by Means of Heat, J. Clin. Investigation **27**: 239 (March) 1948.

From the Bureau of Epidemiology and Communicable Disease Control, New York State Department of Health, Albany (Drs. James and Korns), and from the Department of Pathology and Bacteriology, Albany Medical College, Albany (Dr. Wright).

1. Brightman, I. J., and Korns, R. F.: Homologous Serum Jaundice in Recipients of Pooled Plasma, J. A. M. A. **135**: 268-272 (Oct. 4) 1947. Spurling, N.; Shone, J., and Vaughan, J.: The Incidence, Incubation Period, and Symptomatology of Homologous Serum Jaundice, Brit. M. J. **2**: 409-412 (Sept. 21) 1946. Lehane, D.; Kwantes, C. M. S.; Upward, M. G., and Thomson, D. R.: Homologous Serum Jaundice, ibid. **2**: 572-574 (Sept. 10) 1949.

2. Oliphant, J. W.: Jaundice Following Administration of Human Serum, in Harvey Lecture, March 16, 1944, Bull. New York Acad. Med. **20**: 429 (Aug.) 1944. Oliphant, J. W., and Hollaender, A.: Homologous Serum Jaundice: Experimental Inactivation of Etiologic Agent in Serum by Ultraviolet Irradiation, Pub. Health Rep. **61**: 598-602 (April 26) 1946.

3. Blanchard, M. C.; Stokes, J., Jr.; Hampil, B.; Wade, G., and Spizizen, J.: Methods of Protection Against Homologous Serum Hepatitis: Inactivation of Hepatitis Virus SH with Ultraviolet Rays, J. A. M. A. **138**: 341-343 (Oct. 2) 1948.

4. MacCallum, F. O.: Homologous Serum Hepatitis, Proc. Roy. Soc. Med. **39**: 655-657 (Aug.) 1946.

5. Minimum Requirements: Normal Human Plasma, 6th Revision, Federal Security Agency, National Institute of Health, Bethesda, Md. (April 15) 1949.

6. Neefe, J. R.: Viral Hepatitis: Problems and Progress, Ann. Int. Med. **31**: 857-870 (Nov.) 1949.

function in all cases were marked and typical of the disease.

Investigation reveals that 10 of the 30 persons who presumably received the suspected lot of commercial irradiated human plasma (D) died between one and 33 days after receipt of plasma as a result of the illness for which transfusion was given. Of the remaining 20 patients, 8 had jaundice by the time the investigation was initiated. Study of the 10 persons not known to have manifested homologous serum jaundice is still proceeding, since many of them may now be within the incubation period of the disease, and 3 have not yet been located for interview. A follow-up vating all strains of homologous serum jaundice. It also lends support to the belief that other sporadic clinical cases of hepatitits noted by us and others [7] in recipients of irradiated plasma may, in fact, be due to virus in this product. On the other hand, it is conceivable that this outbreak of 10 cases of serum hepatitis actually represents only an irregular or occasional failure of ultraviolet irriadiation to destroy the virus completely. It must be admitted that, to our knowledge, this is the first reported instance in which multiple cases have been attributed to a single lot of pooled irradiated plasma, despite the fact that plasma so treated has been very widely used since it became available nearly two

TABLE 1.—*Cases of Homologous Serum Jaundice—Original Illness and Transfusions Received*

Case No.	Age	Sex	Diagnosis for Which Plasma Given	Date of Transfusions of Plasma	Lot of Irradiated Plasma	Quantity Plasma, ml.	Whole Blood, Units	Date Onset Hepatitis	Incubation Period, Days
1	47	M	Bleeding duodenal ulcer	9/16/49	A	250	3	1/ 1/50	107
					B	250	..	.....	..
					C	200	..	.....	..
2	24	M	Nephrolithiasis and nephrectomy	11/16/49	D	1,750	2	1/ 3/50	48*
				11/16/49	E	250	..	.....	..
				11/17/49	E	250	..	.....	..
3	78	M	Fractured pelvis	11/30/49	F	250	4	2/28/50	90
				11/30/49	G	250	..	.....	..
4	59	M	Perforated peptic ulcer	12/ 2/49	D	250	3	1/30/50	59
5	37	F	Postoperative hemorrhage repair to introitus	12/16/49	D	250	1	2/12/50	58
6	30	F	Ruptured ectopic pregnancy	12/19/49	D ?	500	2	2/11/50	54
7	64	M	Nephrolithiasis and nephrectomy	1/ 9/50	D	250	1	3/10/50	60
8	61	M	Spinal fusion	1/14/50	D	250	5	4/20/50	102
				1/14/50	H	250	..	.....	..
9	58	M	Multiple fractures	1/16/50	D	250	2	3/18/50	58 or 61
				1/16/50	F	250	..	.....	..
				1/19/50	D	250	1	.....	..
10	92	M	Benign prostatic hypertrophy and prostatectomy	1/20/50	D	250	6	3/20/50	69
11	40	M	Fractured femur	1/25/50	D ?	250	1	3/29/50	63
12	59	F	Diaphragmatic hernia	1/20/50	D	250	29	5/ 8/50	108

* After receipt of lot D.

TABLE 2.—*Recipients of Irradiated Plasma Not Yet Found to Have Homologous Serum Jaundice*

Case No.	Age	Sex	Diagnosis for Which Plasma Given	Date of Transfusions of Plasma	Lot of Irradiated Plasma	Quantity Plasma in ml.	Whole Blood in Units	Status at Last Report (April 30, 1950)
13	63	M	Hypertrophic cirrhosis	11/30/49	D	250	None	Negative for hepatitis on 4/25/50
14	25	M	Fractures both legs	12/ 3/49	D	250	4	Negative for hepatitis on 4/10/50
				12/ 3/49	I	250		
15	57	M	Fractured humerus	12/ 7/49	D	250	2	Not yet contacted for interview
16	40	F	Incomplete abortion	1/ 4/50	D	250	5	Negative for hepatitis on 4/10/50
				1/ 4/50	E	250		
				1/ 4/50	F	250		
17	2	F	Otitis media	1/ 4/50	D	250	0.5	Negative for hepatitis on 4/18/50
18	70	M	Prostatectomy	1/11/50	D	250	4	Negative for hepatitis on 4/10/50
19	2	M	Persistent vomiting	1/20/50	D	250	3	Negative for hepatitis on 4/21/50
20	45	M	Fractures both legs	1/23/50	D	500	8	Not yet contacted for interview
				1/23/50	J	250		
				1/23/50	K	250		
21	62	M	Rectal cancer	2/27/50	D	250	5	Negative for hepatitis on 4/10/50
				2/27/50	H	250		
22	18	M	Third degree burns	3/ 3/50	D	250	None	Not yet contacted for interview
				3/ 3/50	L	250		

is also being made on recipients of other lots of plasma obtained from this blood bank during the period September 1949 to February 1950. Several units of the suspected lot D are available, and it is hoped that it will be possible to utilize this material for human volunteer studies in an attempt to prove even more conclusively the icterogenic nature of the plasma. Apparently, this lot met the specific standards promulgated by the National Institutes of Health for the manufacture of irradiated plasma and consisted of 64 units, 63 of which were sent to the one hospital. The detailed procedure for the preparation of lot D is being studied carefully but, as yet, no apparent irregularities have been noted.

This report tends to confirm the statement of Neefe [6] that irradiation may not be a reliable method of inactivation years ago. In any event, it seems essential that large scale studies of the problem with systematic and rigorous follow-up of recipients of pooled irradiated plasma be carried out.

ADDENDUM

Since the manuscript was submitted for publication, icteric homologous serum jaundice developed in cases 14 and 15 (table 2), 116 and 86 days, respectively, after transfusion, thus increasing the attack rate to 60 per cent. Supplemental information on the use of another lot of irradiated plasma, known to have been derived from the same pool as lot D, indicates that at least 1 out of 5 recipients likewise later had homologous serum jaundice.

7. Unpublished reports on file, New York State Department of Health, Albany, N. Y.

MEDICAL PROBLEMS ENCOUNTERED IN UNDERSEA CRAFT

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The effect on man's life in abnormal spheres of environment, for which he is more or less not physiologically adapted, is portrayed rather dramatically by service in that portion of the armed forces devoted to operation of undersea craft.

In order to appreciate the general living conditions in undersea craft, it would appear appropriate to consider briefly some of the circumstances which come to bear on a person's day to day existence aboard a submarine. Prolonged residence in specialized craft, such as submarines, where sunlight is nil and outside ventilation is reduced to only part of the day and where there is close association in the sleeping and working spaces, obviously is fraught with ideal conditions for the spread of disease. The ever present excess humidity additionally promotes discomfort and propagation of disease by enhancing the effect of either tropical or frigid temperatures.

Life aboard submarines is monotonous for long periods. Not infrequently, the submariner must be able to bear failures for many weeks, and when enemy countermeasures are added life becomes a war of nerves. Frequently, during counterattacks, the lights go out and one must sit in the dark, and in the darkness the element of fear is intensified. Unlike the airplane in combat, the submarine cannot fly away. It must remain motionless, or nearly so, and quiet, for fear of discovery. To remain quiet requires the silencing of virtually all machinery, including the air conditioning facilities. The humidity effect thus becomes completely uncontrolled and results in temperatures, hot or cold, that severely tax the endurance of the personnel. The unnaturalness of life aboard a submarine is further magnified by the fact that there is no constant change between day and night, for the lights have to burn all the time inside the boat. There are no Sundays and no week days; therefore, life is without diversion, recreation or rhythm. There is no regular time for sleeping, since a large part of combat activity occurs at night. The odors on board, the noise and the motion of the ship all add up to a heavy tax on morale. Smoking and drinking of strong coffee are also factors which must not be ignored, because both affect the stomach and nerves of the crew, particularly if these indulgences are practiced at night on an empty stomach.

DISEASES OF PERSONNEL

The principal diseases of submarine personnel are, or may be ascribed to, colds and constipation. To these, and of equal incidence, may be added skin diseases. The occurrence of colds among submarine crews has been a matter of considerable study and interest to students of preventive medicine. With respect to colds and other diseases of an infectious nature, the submarine has, in fact, been the ideal large family unit for epidemiologic study. Aboard a submarine, sufficiently large numbers of persons are closely associated for periods of adequate duration to produce valid data. Moreover, encasement in an isolated iron container precludes dispersion of the original subjects and the introduction of new ones. The usual chain of events begins with departure of the vessel on patrol with a crew containing a few members with recently acquired colds. Within 48 to seventy-two hours colds are likely to spread through the population with explosive rapidity. Before the end of a week the incidence usually subsides with equal rapidity. Explanations have been many. Undoubtedly the rapid spread is the result of close association in sleeping and working quarters, together with the fact that even one affected person, though limited in his travel to the length of the vessel, can in this travel contact the entire crew. The absence of contact with any new infections and the oily character of the decks and machinery no doubt influence the rapid decline of cold incidence. Resistance acquirement also must play a significant role in the self limitation of cold outbreaks.

The constipation encountered in submarine crews is probably the result of a number of factors: (1) the lack of physical exercise, (2) the American trait of selecting an excess of starchy foods, despite a furnished balanced diet, and (3) a natural reluctance to visit, with any degree of regularity, a cold, clammy, cramped cubicle, the operation of which requires considerable mechanical aptitude.

The skin diseases observed in submarine personnel are mainly of the fungus type affecting the feet, ears and other portions of the body in approximately the frequency of the order named. Heat rash is common. These maladies are most prevalent during sojourns in tropical areas, where heat and excess humidity are participating factors. The fact that the submarine contains insufficient bunks to accommodate the entire crew simultaneously, thus requiring alternate sharing of berths by watch standers and sleepers, lends to dissemination of external skin infections.

I do not mean to imply that colds, constipation and skin conditions constitute the total disease entities of submarine crews; I want to emphasize that any disease peculiar to a young, adult male population is repeatedly evidenced. In this category, the wartime patrol occurrence of appendicitis and its sometimes heroic treatment by the submarine's only medical representative, a pharmacist's mate, has received sufficient radio and press acclaim to make further comment unnecessary except that generally speaking, the presumption of any member of the naval service, other than a bona fide doctor, to operate on a patient for appendicitis is looked on with disapprobation by the Medical Department of the Navy. While the outcome may have been gratifying in a case or two, in the long run the net result of pharmacist's mates operating for appendicitis will be grief rather than gratification.

Injuries contribute many sick days to the submarine's log. Vertical ladders, narrow passageways and slippery decks are productive of falls and the usual sequelae. Rapid clearing of the bridge, due to imminent attack, and projecting machinery add to the incidence of injuries.

Venereal disease is incompatible with submarine residence. The removal of infected personnel is mandatory in peacetime. The occurrence of venereal disease during wartime patrol, when removal cannot be effected, taxes the pharmacist's mate's ingenuity and is detrimental to the morale of the crew in general.

With submarines, as is true of automobiles, airplanes and ladies' hats, there is nothing static about them, so that new and improved models are forever being designed. The latest innovation in submarines has been

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the introduction of the snorkel type vessel. The Germans developed the snorkel during the late war, and we picked it up from them. Primarily, the snorkel is a breathing tube which extends to the surface from a submerged position, enabling the vessel to remain submerged and, yet, to obtain from the atmosphere sufficient air to accomplish propulsion and at the same time to charge batteries from the internal combustion engines. Sufficient ventilation can also be obtained via the snorkel for replenishment of the air in the living and working spaces and to permit dissipation of the engine's exhaust gases. This is the submarine of today in the United States Navy and the navy of our most probable enemy.

NEW MEDICAL PROBLEMS

Examination of the medical problems imposed by this new type craft indicates in general the persistence of all the maladies of the World War II submarine with some notable additions.

Some of the major new medical problems of submarines occasioned by the addition of the snorkel may be cited: The snorkel tube, projecting above the surface of the water, is frequently dipped under, either by wave action, inefficiency of the planesman or mechanical failure of the controls and loss of depth control. The snorkel tube is fitted with a head valve that closes to prevent flooding of the boat when the upper end of the tube is submerged. Despite this provision, considerable amounts of water frequently are admitted through the snorkel because of a lag in the valve's action. The decks and machinery may be inundated and thus may the atmosphere become further supersaturated, resulting in an attendant exaggeration of routine ills. Further, on closure of the head valve, the vessel becomes a sealed container within which the internal combustion engines, acting now as vacuum producing compressors, continue to operate. The result is a decrease in the atmospheric pressure in the submarine environment with a consequent production of simulated altitudes, in all respects physiologically similar to that of ascending aircraft. On regaining the surface, the head valve opens and air rushes into the snorkel tube so that atmospheric pressure is reestablished within the compartments. Crew members with blockage of the eustachian tube, who are thus unable to equalize pressure on the two sides of the drum membrane, will experience ear pain and possibly considerable ear drum damage. The pain may be severe, and bleeding from ears and actual membrane rupture sometimes occur.

Reduction of the atmospheric pressure also connotes decreases in the partial pressure of oxygen. Simulated altitudes of 7 to 10,000 feet, attained during episodes of loss of depth control, have not exhibited any symptoms of anoxia. However, consideration must be given to reduction of the normal 20 per cent oxygen content of the compartment air by human consumption, plus the pressure decrease, as potential sources of anoxia to operators of vital machinery. It is natural to expect that such difficulties as are attributed to the imperfection of the head valve in the snorkel will be largely eliminated with the aid of improved engineering factors.

DANGERS IN SUBMARINE OPERATION

An ever-present hazard of submarine operation is accidental flooding of the compartments to the extent that the vessel is bottomed. If the depth of the water is insufficient to crush the hull, live personnel are generally incarcerated in those compartments not flooded. Submarine escape is, therefore, an item of vital concern to submariners and is a matter of cognizance for medical personnel. The escape method of choice is by means of the submarine rescue chamber. This implement, a refinement of the model used to rescue 33 men from the *U.S.S. Squalus* in 1939, is a nine ton, pear-shaped, miniature submersible, which until recently required the services of a deep sea diver to attach its down-haul cable to the sunken vessel. Since the strength of hulls precluded a vessel's collapse in depths of water beyond the physiologic limits of diving, it became necessary to devise a buoy, carried by each vessel, to bring the down-haul cable to the surface. In the absence of a rescue chamber, the escape of each person from a submarine is accomplished by means of a breathing apparatus known as the "lung" or by "free" escape, in which the person exhales during the entire ascent through the water and wears no respiratory aid. In either instance the decreasing ambient pressure experienced during the rise through the water results in expansion of the air contained in the respiratory tract. Failure to breathe and rigid closure of the glottis during the ascent is followed by rupture of the alveoli and air embolism with its grave consequences.

Thus it would appear that life aboard a submarine is not cheerful or glamorous. While submarine duty is no place for a man with claustrophobia, certainly there must be compensations for all the inconveniences and objectionable features, in that it is almost axiomatic in the naval service that once a submariner, always a submariner. There is no segment or branch of the Navy in which there is a closer knit camaraderie or higher esprit de corps than among these men, whose sphere of operations is neither on nor over but beneath the seas.

MEDICAL CONTRIBUTIONS

To the end that life aboard a submarine might be made less unnatural, less inconvenient for this band of highly specialized, highly deserving and vitally important men of the Navy, and by way of reducing their jeopardy to disease or risk of injury, the medical profession and devotees to the sciences allied to medicine have played an important role. Among some of the more notable of their contributions may be mentioned the following work: Through applied research the contention that sufficient air conditioning would result in an increase in comfort, efficiency and endurance of personnel and a decrease in the potentiality of the submarine's environment to propagate physical ailments has been validated. War patrol data are now available to substantiate the fact that of signal importance in augmenting personnel endurance aboard submarines has been the introduction of air conditioning equipment. The submarine personnel selection program, initiated in the early days of the war as a medical research product implemented by medical personnel, is more difficult to justify. In evidence, however, are hundreds of reports by commanding officers indicating the selected product to be inferior in only 8 per cent of the cases. In contrast, over 60 per cent attrition occurred in a group of 250 men distributed to submarines without benefit of selection. An over-all submarine attrition rate of 1 per cent seems to bespeak the value of attention paid to the original submarine personnel allocation. Additionally, it is believed that personnel selection, air conditioning and the institution of numerous preventive medicine measures are at least partially responsible for the wartime incidence of dis-

ease being less aboard submarines than in the general Navy population, despite poorer habitability and increased occupational hazard in the former.

The visual and auditory requirements of submarine ratings have been the object of medical research for the past 10 years. The effort in this direction has been to assign those best physically equipped to tasks with exacting special sense aptitudes.

The field of submarine escape research, development and training is totally within the technical direction of submarine medical officers. New methods and improvement apparatus are currently prime projects in submarine medical research.

HABITABILITY OF THE SUBMARINE

The general subject of submarine habitability, its problems and their solutions are a constant challenge to medical personnel. In this regard, two items are of interest at present. First, most persons dwell on the earth's surface in an atmosphere of 0.04 per cent carbon dioxide, whereas submarine personnel live and work for extended periods in a carbon dioxide concentration of 1 to 4 per cent. Research is at the moment endeavoring to elicit the physiologic effects of such environment, if any, and the discovery of a remedy therefor. Second, the submariner's constant awareness of being beneath the surface of the water appears amendable to dissolution through lighting and painting changes within the compartments. Considerable study has been accomplished in this direction, toward creating an overhead resembling the sky and yet maintaining and improving the lighting at stations where the visual requirements are exacting. The installation of ultraviolet (Alpine) lamps aboard submarines at one time received some popular acclaim. Their efficacy was ostensibly twofold. First, a bactericidal effect was believed to be brought to bear; second, a means was offered toward partially compensating for the protracted denial of sunlight to the crew. The thought was held, I suppose, that it might be possible for one to acquire a suntan even while submerged in a submarine.

REQUIREMENTS OF PERSONNEL

World War II submarine experience indicated early that it was unprofitable to employ submarines on patrols longer than 60 days. These limits of endurance occurred with the best obtainable physical and psychologic selection methods in which as high as 50 per cent rejections were exhibited. There also appeared to be definite correlation between efficient endurance and the amount of time spent submerged. Actual war trials are necessary to validate the reasonable expectation that profitable endurance time will be further reduced in vessels that spend virtually all their patrol time submerged. Either the fact of decreased endurance must be accepted, or personnel selection methods must produce persons of extremely exceptional endurance. It appears that relief of crews on station in the patrol areas may become a reality.

The submarine is an intricate, complicated, precise machine—an exceedingly effective but highly vulnerable craft. Since its crew may make but one serious mistake in a lifetime, it is mandatory that in the selection of submarine personnel consideration be given not only to physical standards but also to such attributes as special senses, emotional maturity and stability and freedom from psychopathic tendencies. It does not follow, however, that the ultimate in personnel is required for manning submarines. The representative submariner is a person who is average or above in mentality and education, who is strong, healthy and well adjusted emotionally and tempermentally to himself and to his fellows and who wants submarine duty. This latter attribute, the actual preference for submarine duty, is of paramount importance.

SUMMARY

The foregoing material represents a brief account of some of the principal submarine medical problems of today and in a measure what the Medical Department of the Navy has done toward finding a solution for those problems. Even though it does not appear reasonable to contemplate that living conditions aboard a submarine will ever be ideal, effort will continue to be exerted toward approaching the highest state of habitability possible of attainment. In any event, one cogent fact must once again be apparent to all thoughtful persons: Regardless of the medium, machine or modality, the measure of the world continues to be man, and the limit of man's mastery of machine will depend largely on the progress of medical research and specialized medical measures.

ABSTRACT OF DISCUSSION

Capt. O. D. Yarbrough, Washington, D. C.: The fact has been established that for part of the time, at least, the aviator and the submariner occupy similar environments. Additionally, as a result of this environment, two maladies which aviators tend to contract, aero-otitis and anoxia, make their appearance in submarine personnel. Three years ago, aero-otitis was viewed as one of our most distressing problems. When one is at sea day to day prediction of blockage of the eustachian tube is impossible. Also, the countermeasures of removal of affected personnel and installment of refuge compartments and decongestant nasal sprays are impossible, uneconomical or fraught with failure or require frequent repetition. Engineering improvements have partially solved this problem. Improved automatic steering in a vertical plane has reduced the majority of the pressure fluctuations to ineffective levels. The automatic stopping of engines, to prevent noticeable changes in vacuum, and gradual return to atmospheric pressure by controlled addition of compressed air to the compartments are effective expedients. In spite of these improvements, one aspect of the equalization requirement remains unsolved. Equalization of pressure on the drum membrane during the phase of decreasing pressure requires no individual voluntary effort. The phase of increasing pressure, however, does require voluntary effort in most persons. This means that sleeping persons will be awakened by ear pain when the compartments return to atmospheric pressure coincident with opening of the snorkel valve. Experienced submariners have learned that virtually the only escape from the monotony and mental tension of war patrol existence is in sleeping. Repeated awakenings caused by ear pain may create a fear of going to sleep and eventually an increase in attrition in submarine personnel through psychogenic or neurogenic entities. Aircraft and submarine operation is similar in yet another respect. Aircraft accidents are most likely to occur during periods of major altitude changes, such as "take-offs" and landings. Submarine casualties are also most frequent during phases of major depth changes, such as the shift from snorkel depth to complete submergence or vice versa. Herein, we believe, exists the threat to submarine safety, exhibited by anoxia. You have heard of the biphasic operational characteristic of the World War II submarine. It is contemplated that present and future submarine operational doctrine will still also be somewhat biphasic but different, in that the hours of darkness probably will be spent submerged and that snorkel depth will be assumed with the advent of daylight. The night-submerged period will deplete the normal 20 per cent oxygen of the ship's compartments. Data are available from the late war to validate the fact that reductions to 17 per cent oxygen have occurred. Loss of depth control is

one of the potential accidents incident to major depth changes. If such an incident occurs while the submarine is assuming snorkel depth, subsequent to a submergence, the ensuing uncontrolled plunge of the ship will close the snorkel head valve and produce a vacuum. The vacuum, plus the previously reduced oxygen percentage, may result in oxygen partial pressure incompatible with efficient personnel performance or even unconsciousness on the part of operators of vital machinery and loss of the ship. It is indicated that the air oxygen in the compartment must be a matter of continuous recording and replenishment when indicated. The primary paper by Rear Admiral Pugh indicated that submarine crews are continuously exposed to atmospheric carbon dioxide levels of 1 to 4 per cent, as contrasted to the normal air content of 0.04 per cent. Whether carbon dioxide accumulations of the order of 1 to 4 per cent produce physical changes is unknown. In the past, especially during war time, we have repeatedly removed personnel from submarines because of incapacitating complaints without demonstrable underlying disease. For want of a better title, most of these cases have received a "psychogenic" label. American and German submarine medical authorities have frequently contended that extended exposure to low level carbon dioxide increases might be partially or wholly responsible for such occurrences. Whether increases in carbon dioxide concentration result in physical changes, continuous carbon dioxide control is now indicated for the submarine compartment atmosphere, if for no other reason than to prevent augmentation of the anoxia effect.

DR. HOWARD T. KARSNER, Washington, D. C.: Among the medical problems of undersea craft is the incidence of the common cold. This incidence assumes greater importance when viewed with regard to the explosive nature with which colds often spread through submarine crews. In effect, it is apparent that, at least during peak incidence, many of the personnel are affected. Even though the resulting disability is not great, there is some decrease in efficient performance of persons whose assigned tasks require alertness and are each important to the success of missions, if not actually vital to safety and survival of the ship. Moreover, since the advent of snorkel type submarine operation, with the attendant pressure changes in the compartments, acute coryza, through involvement of the pharyngeal portion of the eustachian tube and the cranial sinus ostia, may produce complete inability to equalize intracavitary pressures during barometric changes. Disability in this instance is real and incapacitating. Therefore, the Navy in general and the Submarine Force in particular are intensely interested in a study conducted at the United States Naval Training Center, Great Lakes, Ill. The object of this study was to assess the value of various antihistamines as prophylactic or therapeutic measures for the common cold. This study was a controlled experiment on the effectiveness of the antihistamines and was conducted by a research team under Comdr. John R. Seal, Medical Corps, United States Navy, and included specialists such as an immunologist and a bacteriologist. A competent biometrician subjected the data to statistical analysis, and the concluding statements are statistically valid. Great care was exercised to identify the condition as "common cold" by the use of clinical and immunologic methods. The study was conducted in four parts. The first part was concerned with common cold prophylaxis. A group of 1,103 male recruits were observed for about three months. Of these, 352 received an antihistamine and 337 a placebo, and 414 were untreated. There was a high incidence of upper respiratory infection, epidemiologically and clinically identified as the common cold. There was no evidence that the antihistamine prevented the disease. The second part of the study dealt with the treatment of the common cold. A population of 357 male recruits was observed in this portion of the study. In this group, two antihistamines and one placebo were employed. Colds were prevalent, but no evidence could be adduced to indicate that the antihistamines prevented or altered the course of the colds. In the third part of the study, a relatively small group of WAVE recruits was employed to assess the treatment value of an antihistamine as compared to a placebo containing atropine and a plain placebo. There was suggestive evidence that the antihistamine and the atropine placebo favored return of the nasal mucosa to normal after recovery, but there was no effect on the course of the colds or the recovery rate. The fourth portion of the study was conducted on volunteers from the permanent personnel of the station; it entailed both prophylactic and therapeutic evaluation. There was no evidence of benefit. The placebos appeared to be as effective as the antihistamines. There was no evidence that the antihistamines prevented or significantly altered the course of any of the acute respiratory diseases encountered on this naval station from Feb. 4 to April 14, 1950.

RECENT TRENDS IN ANTIBIOTIC THERAPY

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The majority of serious infections commonly encountered in the United States at the present time are amenable to treatment with chemotherapeutic agents. New antibiotics have appeared so rapidly, however, that difficulty is often experienced in selection of the proper agent and dosage for a specific patient. The present discussion deals with recent developments in this rapidly changing field, with emphasis on the relation of the various antibiotics to one another and to the sulfonamides.

SULFONAMIDES

With the introduction of aureomycin, chloramphenicol (chloromycetin®) and terramycin, indications for the sulfonamides are becoming ever more restricted. There are only three commonly encountered conditions in which sulfonamides may still be regarded as the drug of choice, namely, uncomplicated urinary tract infections, bacillary dysentery and meningococcic meningitis. Sulfonamides are also often administered in conjunction with penicillin or other agents in the treatment of certain severe infections, such as pneumococcic meningitis. Triple sulfonamide mixtures, which reduce the incidence of crystalluria, appear to represent a real advance and have gained widespread popularity. In this connection 3,4-dimethyl-5-sulfanilimido-isoxazole (gantrisin®), a new sulfonamide,[1] is considerably more soluble than any of the older compounds and appears to be equally effective therapeutically.

PENICILLIN

Despite the advent of antibiotics which may partially replace it, the demand for penicillin has remained high. Perhaps the most noteworthy trend in penicillin therapy has been the adoption of slowly absorbed procaine penicillin G preparations for the treatment of virtually all infections caused by penicillin-sensitive organisms. Even subacute bacterial endocarditis, except when caused by resistant forms of streptococci such as enterococci, responds favorably to this simplified form of therapy.[2]

Procaine penicillin G is available in three forms. Representative blood serum concentrations following intramuscular administration of 1 cc. of each of these preparations are presented in chart 1. Effective therapeutic levels for the treatment of most infections are

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1. Rhoads, P. S.; Svec, F. A., and Rohr, J. H.: Clinical Evaluation of a New Sulfonamide—Gantrisin, Quart. Bull., Northwestern Univ. M. School **23**: 104, 1949.

2. Roston, E. H., and Stollerman, G. H.: Procaine Penicillin in the Treatment of Subacute Bacterial Endocarditis, Am. Pract. **4**: 102, 1949.

achieved by the injection of crystalline procaine penicillin G, 1 or 2 cc. every twelve or twenty-four hours, depending on the severity of the infection (line A, chart 1). Stable aqueous suspensions of this preparation are now available, making the administration of penicillin no more complicated than most other types

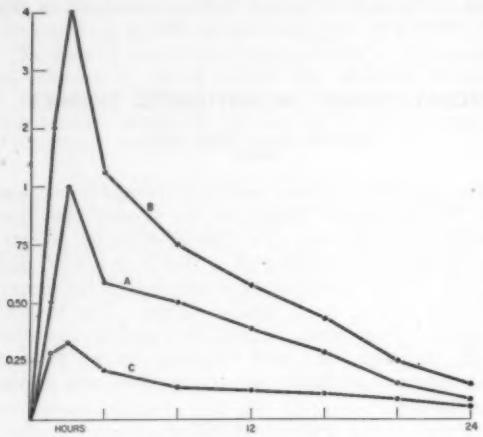

Chart 1.—Blood serum concentrations of penicillin following the intramuscular administration of 1 cc. of each of three forms of crystalline procaine penicillin G. *A*, 300,000 units of procaine penicillin G in aqueous suspension; *B*, 300,000 units of procaine penicillin G fortified with 100,000 units of buffered potassium penicillin G; *C*, 300,000 units of procaine penicillin G with aluminum monostearate 2 per cent. The vertical row of figures represents the number of units per cubic centimeter.

of intramuscular medication. Procaine penicillin G fortified with 100,000 units of crystalline potassium penicillin is available when high tissue concentrations are desired immediately (line B, chart 1). This preparation has disadvantages, however, in that it is relatively unstable once the diluent is added, and it is considerably more expensive than the plain procaine penicillin G. In addition, the higher concentrations attained are probably unnecessary for the great majority of infections. The tendency to employ concentrations of penicillin far in excess of those actually needed is commonly justified on the basis that penicillin may no longer be considered an expensive antibiotic and that one may be dealing with a resistant organism. Actually, with the exception of the Staphylococcus, resistance to penicillin has not become a problem. It may be of historical interest, at least, to recall that excellent therapeutic results were once achieved with total daily doses no larger than 40,000 units. Aluminum monostearate preparations (line C, chart 1) impede absorption so effectively that small amounts of penicillin may be detected in the blood for as long as four days after a single injection of 300,000 units. This renders them unreliable for the treatment of many acute infections. In syphilis, on the other hand, these preparations may prove to be a great boon by permitting injections only once or twice a week.[3]

The chief uses for the rapidly absorbed sodium or potassium salts of crystalline penicillin G at the present time are (1) conditions such as enterococcic endocarditis, in which extremely high tissue concentrations are necessary, (2) administration of penicillin into body cavities such as the intrapleural space and spinal canal and (3) oral administration. Massive intramuscular doses have been found to penetrate the meninges adequately for the treatment of pneumococcic meningitis.[4]

STREPTOMYCIN

Tuberculosis remains the principal disease for which streptomycin therapy is indicated. Because of its toxicity and the rapid development of bacterial resistance, streptomycin is being supplanted by aureomycin, chloramphenicol and terramycin for the treatment of most other infections for which streptomycin was once clearly the agent of choice. Urinary tract infections due to Pseudomonas aeruginosa and Bacillus proteus are possibly still best treated with streptomycin,[5] and this antibiotic plays an important role when given in combination with other agents in conditions such as enterococcic endocarditis. Dihydrostreptomycin has become widely accepted in the past two years, but there is doubt in the minds of some investigators that it is less toxic than streptomycin. On this basis, the Veterans Administration Tuberculosis Hospitals have recently discontinued the use of dihydrostreptomycin except in unusual circumstances.[6]

AUREOMYCIN, CHLORAMPHENICOL AND TERRAMYCIN

Outstanding characteristics of these new antibiotics are (1) their low toxicity, (2) the broad spectrum of infectious agents against which they are effective and (3) their relatively good absorption from the gastrointestinal tract, which makes oral administration feasible from a therapeutic standpoint. The three antibiotics will be considered together since they possess many features in common and with few exceptions none has shown definite superiority over the others in the treatment of most infections. Terramycin has been investigated clinically for less than a year, and statements concerning it must, therefore, be accepted more tentatively than for the other two agents. From both

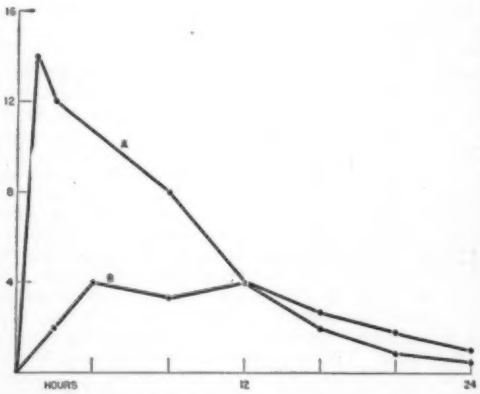

Chart 2.—Representative serum concentrations of aureomycin following the administration of 0.5 Gm. intravenously (*A*) and 1.0 Gm. orally (*B*). The vertical row of figures represents the number of micrograms per cubic centimeter.

pharmacologic and therapeutic standpoints, terramycin may be said to resemble aureomycin more closely than chloramphenicol.

3. Thomas, E. W.; Rein, C. R.; Landy, S., and Kitchen, D. K.: Results of Single and Multiple Injection Schedules for the Treatment of Early Syphilis with Penicillin in Oil and Aluminum Monostearate, Am. J. Syph., Gonor. & Ven. Dis. **34**: 331, 1950.

4. Dowling, H. F.; Sweet, L. K.; Robinson, J. A.; Zellers, W. W., and Hirsh, H. L.: The Treatment of Pneumococcic Meningitis with Massive Doses of Systemic Penicillin, Am. J. Med. Sci. **217**: 149, 1949.

5. Tompsett, R., and McDermott, W.: Recent Advances in Streptomycin Therapy, Am. J. Med. **7**: 371, 1949.

6. Protocols for the Chemotherapy of Tuberculosis, Ninth Veterans Administration, Army and Navy Streptomycin Conference, St. Louis, April 18-21, 1950.

Absorption of all three agents from the intestinal tract is relatively good, supplying therapeutic levels in the blood stream for twelve hours or more following a single oral dose of 1 Gm. Representative levels for aureomycin are presented in chart 2. Similar concentrations are attained with terramycin, whereas with chloramphenicol they are considerably higher. A satisfactory intravenous preparation is available for aureomycin, which is a great advantage in patients unable to take oral medications. As indicated in chart 2, much higher blood serum concentrations are attained with an intravenous dose of 0.5 Gm. than with an oral dose which is twice as large. Chloramphenicol can be administered rectally, but variability in absorption may make this a rather undesirable route.

For all three antibiotics, the total daily oral dose is usually 2 to 4 Gm., equal portions of which are administered every four to six hours. Optimal doses are not definitely established, however, and it is possible that smaller amounts may suffice in some instances. In pneumococcic pneumonia, for example, some patients have been found to respond in a highly satisfactory manner to only 1 Gm. daily, given in a single dose.[7]

In contrast to penicillin, the action of the three new antibiotics is primarily bacteriostatic rather than bactericidal. This probably accounts for the relatively poor results obtained with aureomycin and chloramphenicol in the treatment of subacute bacterial endocarditis, despite the high degree of in vitro susceptibility of the etiologic organisms. Another example of this phenomenon is observed in the treatment of streptococcic sore throat. Here, despite an excellent clinical response, the carrier state following aureomycin therapy is much higher than in patients treated with penicillin.[8] Other differences between in vitro and in vivo responses are not so easily explained. S. typhosa is highly susceptible to both aureomycin and chloramphenicol in vitro, for example, and yet chloramphenicol is vastly superior in the treatment of typhoid.[9]

Another point of interest is the lack of correlation observed, in some instances, between therapeutic results obtained in animals and in man. Mice infected with pneumococci respond poorly to chloramphenicol,[10] and yet this antibiotic appears to give excellent results in the treatment of pneumococcic pneumonia in man.[11] In tularemia, also, the response in mice is poor, while the clinical disease in man is promptly cured by chloramphenicol.[12] These examples clearly demonstrate the paramount importance of clinical studies in assaying the effectiveness of chemotherapeutic agents in man.

Many of the infections in which aureomycin, chloramphenicol and terramycin exert their most striking effects are relatively uncommon in the United States. Examples are typhoid fever, psittacosis, tularemia, lymphogranuloma venereum, granuloma inguinale and most of the rickettsial infections. It seems appropriate in this review to place special emphasis on infections commonly occurring in this country in which these antibiotics are of value. Some of the more important ones are pneumonia and other respiratory infections, urinary tract infections, cellulitis, abscesses, peritonitis, diarrhea, brucellosis and penicillin-resistant fevers.

Respiratory infections undoubtedly constitute the largest single group of diseases for which the orally administered antibiotics are currently being used. The common cold, "undifferentiated acute respiratory disease"[13] and influenza A and B make up the majority of such infections, and the value of antibiotics against this group of viruses is far from established. In one of the few studies so far reported on this subject, rapid clinical improvement was noted with aureomycin therapy.[14] Some of the patients described had bronchopulmonary involvement but others did not, and it was impossible to determine definitely whether the response resulted from suppression of the infecting virus or of secondary bacterial invaders. Treatment of such conditions will inevitably continue on a large scale and is probably justified from the standpoint of prophylaxis against pneumonia even if it is finally determined that the causative viruses are not affected. It should be noted that pertussis, a condition often difficult to diagnosis with certainty, appears to respond to aureomycin.[15]

TABLE 1.—*Forms of Pneumonia Which Respond to Therapy with Aureomycin, Chloramphenicol or Terramycin*

Bacterial Pneumonias			
Gram Positive	Gram Negative	Rickettsial Pneumonias	Viral Pneumonias
Streptococcic	Influenzal	Q fever	Viral pneumonia
Pneumococcic	Friedländer's	Typhus fever	Psittacosis
Staphylococcic	Coliform Tularemic	Spotted fever	Lymphogranuloma venereum

The broad spectrum of activity of the newer antibiotics is well illustrated in the treatment of pneumonia. Of the various types listed in table 1, all of which respond to the newer agents, a strikingly beneficial effect from penicillin may be expected only in those due to pneumococci and streptococci. Staphylococcic pneumonias are sometimes susceptible but frequently are caused by penicillin-resistant organisms. Since the cause of pneumonia is often difficult to determine clinically and oral treatment offers such marked advantages, it is probable that most, if not all, pneumonias will be treated with one of the newer antibiotics when cost is no longer a factor.

In urinary tract infections there is usually a good initial clinical and bacteriologic response to treatment, except with B. proteus or Ps. aeruginosa. Even with the colon-aerogenes group, however, relapses are common if the infection is chronic or if obstruction is present. Excellent results have been obtained in the treatment of cellulitis and certain types of abscesses. Here again the possibility of penicillin-resistant staphylococci is to be considered in choosing an antibiotic. The results in peritonitis and brucellosis are most gratifying and require no special comment. As a cause

7. Kirby, W. M. M.; Michel, J. C.; Coleman, D. H.; Haviland, J. W., and Sparkman, D. R.: Comparison of Aureomycin and Chloromycetin in the Treatment of Bacterial Pneumonias, to be published.

8. Rammelkamp, C. H.: Personal communication to the author.

9. Knight, U.; Ruiz Sánchez, F.; Ruiz Sánchez, A.; Shultz, S., and McDermott, W.: Antimicrobial Therapy in Typhoid, Arch. Int. Med. **85**: 44 (Jan.) 1950.

10. Bliss, E. A., and Todd, H. P.: A Comparison of Eight Antibiotic Agents, in Vivo and in Vitro, J. Bact. **58**: 61, 1949.

11. (*a*) Kirby, Michel, Coleman, Haviland and Sparkman.[7] (*b*) Recinos, A.; Ross, S.; Olshaker, B., and Twible, E.: Chloromycetin in the Treatment of Pneumonia in Infants and Children, New England J. Med. **241**: 733, 1949.

12. Parker, R. T.; Lister, L. M.; Bauer, R. E.; Hall, H. E., and Woodward, T. E.: Use of Chloramphenicol in Experimental and Human Tularemia, J. A. M. A. **143**: 7 (May 6) 1950.

13. Clinical Patterns of Undifferentiated and Other Acute Respiratory Diseases in Army Recruits, Commission on Acute Respiratory Diseases, Medicine **26**: 441, 1947.

14. Finland, M.; Wells, E. B.; Collins, H. S., and Gocke, T. M.: Aureomycin in the Treatment of Influenza and Certain Other Acute Respiratory Infections With or Without Pneumonia, Am. J. Med. **8**: 21, 1950.

15. Bell, J. A.; Pittman, M., and Olson, B. J.: Pertussis and Aureomycin, Pub. Health Rep. **64**: 589, 1949.

of diarrhea, amebiasis is of special interest because of its apparent response to newer agents, in contrast to its lack of susceptibility to any of the earlier antibiotics.[16] Viral agents causing gastroenteritis are apparently not affected, and the response in Salmonella infections is far from dramatic. In dysentery caused by Shigella, results are similar to those obtained with sulfonamides, which are probably still to be preferred because of their lower cost.

Penicillin-resistant fevers constitute a somewhat controversial but important and common indication for aureomycin, chloramphenicol or terramycin. Since the cause of fevers may remain obscure for considerable periods and since susceptible organisms may frequently be causative, therapy with antibiotics having a wide range of action is often justified, provided, of course, that studies essential to establishing the correct diagnosis are not neglected. Some of the commoner causes of penicillin-resistant fevers and the response of such fevers or their failure to respond to the newer antibiotics are listed in table 2.

COMBINED THERAPY

An important, and as yet largely unexplored, field of chemotherapy is concerned with the effectiveness of combinations of antibiotics, with one another or with other agents such as the sulfonamides. There are relatively few clinical conditions in which two agents have been clearly proved to be more effective than one. This is partly due to the fact that one of the agents is often so effective by itself that superior results from the addition of another are difficult to demonstrate. An example is pneumococcic pneumonia treated with sulfonamides and penicillin as compared with the excellent results obtained with penicillin alone. Another example occurs with tuberculosis, in which it is difficult to demonstrate clearcut additive effects of therapy with streptomycin plus paraaminosalicylic acid as compared with the administration of streptomycin alone, although the tuberculostatic action of the latter is of definite value in delaying the emergence of streptomycin-resistant tubercle bacilli. The effectiveness of combined therapy has recently been convincingly demonstrated in enterococcic endocarditis, in which cures have been obtained with a combination of penicillin and streptomycin, whereas the response to either alone is poor.[17] The explanation for this good response has been partially clarified by in vitro studies demonstrating a bactericidal action of a combination of the two antibiotics in concentrations which are merely bacteriostatic when either is present alone.[18]

TABLE 2.—*Common Causes of Obscure Fevers and Their Response to Newer Antibiotics*

Penicillin-Resistant Fevers	
Will Respond	Will Not Respond
Brucellosis	Tuberculosis
Amebiasis	Lymphomas
Endocarditis	Fungus infections
Urinary infections	Rheumatic fever
Abscesses	Other collagen diseases

Therapeutic results obtained with sulfadiazine and streptomycin in brucellosis provide another definitive example of the effectiveness of combined therapy. This regimen has now been supplanted by the newer antibiotics,[19] and there is some evidence that a combination of aureomycin and streptomycin may be superior to the administration of aureomycin alone.[20]

A potential disadvantage of combined therapy concerns the possibility that antibiotics when administered together may actually interfere with each other in their action on infectious agents. Such interference has been found to occur in vitro,[18] but to date has not been shown to impair therapeutic results in patients. In studies of the newer antbiotics, the possibility that certain combinations may actually be detrimental must be borne in mind and carefully looked for.

PROPHYLAXIS

Antibiotics are playing an increasingly important role in prophylaxis as well as in therapy. In the prevention of postoperative surgical infections and of postpartum sepsis in complicated obstetric deliveries, to cite only two examples, the prophylactic administration of penicillin has greatly decreased morbidity and mortalities. Important recent contributions to this field include demonstration of the prophylactic value of penicillin in syphilis and gonorrhea,[21] chloramphenicol in scrub typhus[22] and penicillin in rheumatic fever.[23] It has been known for several years that penicillin is of value in preventing recurrent attacks of rheumatic fever in known rheumatic subjects. In addition, it has been shown that rheumatic fever is apparently prevented by early, intensive therapy with penicillin after a streptococcic sore throat has actually begun.[23] This observation, if confirmed and widely applied, may well lead to a pronounced decrease in this important cause of valvular heart disease.

Aside from these specific instances, there can be little doubt that the widespread administration of antibiotics is of prophylactic value in ways which can be measured only indirectly in terms of mortality statistics. Mortality rates for scarlet fever, tuberculosis, syphilis, whooping cough, pneumonia and enteritis were at an all time low during 1949.[24] For pneumonia, the rate was more than 40 per cent below the average for the ten year period 1938-1947. There is every reason to believe that this favorable trend will continue and that the management of all forms of infectious diseases will increase in effectiveness in the ensuing years.

SUMMARY AND CONCLUSIONS

Recent trends in antibiotic therapy are reviewed with emphasis on the newer agents, aureomycin, chloramphenicol and terramycin. The action of these antibiotics has been compared with that of penicillin, streptomycin and the sulfonamides, and commoner indications for the newer agents are discussed. Developments in the important fields of combined therapy and prophylaxis are reviewed.

16. McVay, L. V.; Laird, R. L., and Spruntt, D. H.: A Preliminary Report of the Successful Treatment of Amebiasis with Aureomycin, Science **109**: 590, 1949.
17. Robbins, W. C., and Tompsett, R.: The Summation of Penicillin and Streptomycin Activity in Vitro and in the Treatment of Subacute Bacterial Endocarditis, J. Clin. Invest., in press.
18. Jawetz, E.; Gunnison, J. B., and Coleman, U. R.: The Combined Action of Penicillin with Streptomycin or Chloromycetin on Enterococci in Vitro, Science **111**: 254, 1950.
19. Spink, W. W., and Yow, E. M.: Aureomycin: Present Status in the Treatment of Human Infections, J. A. M. A. **141**: 964 (Dec. 3) 1949.
20. Herrell, W. E., and Barber, T. E.: The Combined Use of Aureomycin and Dihydrostreptomycin in the Treatment of Brucellosis, Proc. Staff Meet., Mayo Clin. **24**: 138, 1949.
21. Eagle, H.; Gude, A. V.; Beckmann, G. E.; Mast, G.; Sapero, J. J., and Shindledecker, J. B.: Prevention of Gonorrhea with Penicillin Tablets, J. A. M. A. **140**: 940 (July 16) 1949.
22. Smadel, J. E.; Traub, R.; Ley, H. L.; Philip, C. B.; Woodward, T. E., and Lewthwaite, R.: Chloramphenicol in the Chemoprophylaxis of Scrub Typhus, Am. J. Hygiene **50**: 75, 1949.
23. Denny, F. W.; Wannamaker, L. W.; Brink, W. R.; Rammelkamp, C. H., Jr., and Custer, E. A.: Prevention of Rheumatic Fever, J. A. M. A. **143**: 151 (May 13) 1950.
24. Record-Breaking Low Mortality in 1949, Statist. Bull. Metrop. Life Insur. Co. **30**: 3, 1949.

Clinical Notes, Suggestions and New Instruments

ACUTE DEHYDRATION DUE TO A MERCURIAL DIURETIC

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and
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We propose in this paper to report an unusual reaction to the subcutaneous administration of a mercurial diuretic, meralluride (mercuhydrin) sodium. DeGraff and Nadler [1] in an extensive review of the toxic manifestations of mercurial diuretics in man divided these reactions into two main groups, (1) those related to the diuresis and (2) those related to the diuretic. The reaction observed by us falls within the first category. Poll and Stern [2] emphasized the syndrome due to electrolyte depletion characterized by muscle pains, profound weakness, apathy, somnolence, disorientation, delirium and, occasionally, coma. Russek and Zohman [3] reported 3 cases of cerebral thrombosis apparently precipitated by excessive diuresis with subsequent hemoconcentration, decreased cardiac output, fall in systemic blood pressure and diminution of cerebral blood flow. Marshall [4] reported a case of tetany in a patient, which subsided on administration of calcium. Merkin [5] explained the fever in some patients after treatment with a mercurial diuretic as due to dehydration. Soloff and Zatuchni [6] reported 7 cases demonstrating the syndrome of sodium depletion which may occur in cardiac patients subjected to a regimen of sodium restriction and sodium diuresis. Each of the 7 patients had azotemia, and in those patients in whom blood sodium and chloride determinations were done hypochloremia and hyponatremia were present.

The following case is the first, to our knowledge, in which the picture of peripheral vascular collapse, bradycardia, elevation in temperature and a shaking chill occurred within four hours after an initial dose of meralluride sodium solution and a subsequent diuresis of 1,800 cc. Recovery from this episode occurred within two hours. The blood sodium and chloride determinations at the time of the untoward reaction were both below normal limits.

REPORT OF CASE

A white man aged 49 was admitted to Beth Israel Hospital with the chief complaint of pressing pain in the center of the chest. History of the present illness revealed that one year prior to admission the patient began to have occasional attacks of chest pain which were not necessarily related to exertion and were not relieved by glyceryl trinitrate. On the morning of admission he suddenly had severe anterior chest pain radiating into his left arm. Physical examination revealed a heavily set man who was not in shock. The temperature was 99.6 F., the pulse rate 80, the respiratory rate 18 and the blood pressure 116 systolic and 80 diastolic. The lungs were clear to percussion and auscultation. The heart sounds were of fair quality. There was a regular sinus rhythm. There were no thrills or murmurs. Examination of the abdomen revealed that the liver edge was palpable 2 fingerbreadths below the right costal margin. There was no edema of the extremities. The urine had a specific gravity of 1.018. The white blood cell count was 7,900, with a normal differential. The erythrocyte sedimentation rate was 10 mm. in one hour (Westergren). An electrocardiogram taken on admission showed a Q-T pattern in lead 1 with an elevation of the RS-T transition in lead 1 and a depression of the RS-T transition in lead 3, as in acute myocardial infarction of the anterior wall.

On the second hospital day a precordial friction rub was heard. On the third hospital day auricular fibrillation developed. This reverted to a regular sinus rhythm as the result of quinidine therapy, which was thereafter maintained. The erythrocyte sedimentation rate of the patient rose to 50 mm. in one hour. Subsequent electrocardiograms showed serial changes. The blood sodium level was 133.4 milliequivalents per liter (normal for this hospital, 130 to 143 milliequivalents per liter). The patient was treated with strict bed rest, oxygen, morphine, dicumarol® and a salt poor diet (500 mg. of sodium chloride daily). His convalescence was uneventful except for transient episodes of precordial pain. On the thirty-sixth hospital day, while maintenance therapy with quinidine was being continued, the patient began to have premature ventricular contractions, and occasional moist rales were heard at both bases posteriorly. These persisted until the forty-third hospital day, when it was decided to give the patient a mercurial diuretic on the basis of the existing minimal pulmonary congestion and arrhythmia. The patient received 2 cc. of meralluride sodium solution subcutaneously. This was followed by a diuresis of 1,800 cc. over a period of four hours, after which the patient suddenly complained of feeling exceedingly weak. He was pale and perspiring profusely, with a barely perceptible pulse. The ventricular rate was 36, and the heart sounds were distant. The systolic blood pressure was 60 mm. of mercury; the diastolic pressure could not be measured. The patient had a shaking chill, and the temperature rose to 104 F. During this episode the blood sodium determination was 128.4 milliequivalents per liter and the blood chlorides, 83.8 milliequivalents per liter. After several minutes, the temperature and the cardiac rate returned to normal and there was a rise in blood pressure. Electrocardiograms taken shortly after the chill and on the following day failed to reveal any changes consistent with new myocardial infarction or pulmonary embolization. On the forty-ninth hospital day the patient was given 0.1 cc. of meralluride sodium solution intradermally. There was no evidence of cutaneous sensitivity. A gastrointestinal series of roentgen studies prior to discharge of the patient revealed a small hiatus hernia. When the patient was discharged, fifty days after admission to the hospital, the blood sodium level was 133 milliequivalents and the blood chlorides 92.3 milliequivalents, per liter.

SUMMARY

The untoward reactions that followed the subcutaneous administration of a mercurial diuretic and that were believed to be due to excessive fluid and electrolyte loss are briefly reviewed.

The occurrence of sudden peripheral vascular collapse, bradycardia, shaking chill and rise in temperature after copious diuresis with rapid recovery is reported.

From the Medical Service, Beth Israel Hospital.

1. DeGraff, A. C., and Nadler, J. E.: A Review of the Toxic Manifestations of Mercurial Diuretics in Man, J. A. M. A. **119**: 1006 (July 25) 1942.
2. Poll, D., and Stern, J. E.: Dangers of Dehydration Treatment in Heart Disease, M. Clin. North America **21**: 1873 (Nov.) 1937.
3. Russek, H. I., and Zohman, B. L.: Cerebral Thrombosis Precipitated by Injection of a Mercurial Diuretic, J. A. M. A. **139**: 922 (April 2) 1949.
4. Marshall, F. A.: Tetany Following Mercurial Diuresis, J. A. M. A. **133**: 1007 (April 5) 1947.
5. Merkin, L.: Untoward Effects of Treatment with Mercurial Diuretics, New York State J. Med. **49**: 2429 (Oct. 15) 1949.
6. Soloff, L. A., and Zatuchni, J.: Syndrome of Salt Depletion, J. A. M. A. **139**: 1136 (April 23) 1949.

AUREOMYCIN THERAPY OF HUMAN PSITTACOSIS

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Recent reports have shown that aureomycin has a pronounced therapeutic effect on experimental psittacosis in animals.[1] The only reports on the use of this drug in human psittacosis are those of Brainerd and his associates,[2] who noted favorable results in 1 proved case and 2 probable cases, and Woodward [3] who observed a similar effect in 1 patient.

A case of psittacosis resulting from a single accidental exposure to strain 6BC is reported herein. This illness is of

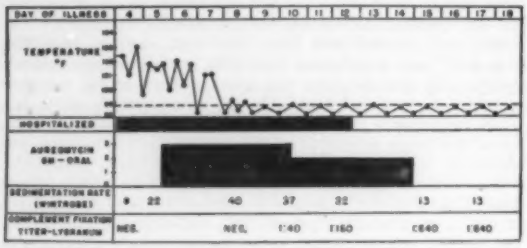
From the Biological Department, Chemical Corps, Camp Detrick, Frederick, Md.

1. Wong, S. C., and Cox, H. R.: Action of Aureomycin Against Experimental Rickettsial and Viral Infections, Ann. New York Acad. Sc. **51**: 290, 1948. Wagner, J. C.: Aureomycin Studies: I. Effect of Aureomycin on Ten Strains of Virus in the Psittacosis-LGV Group, J. Clin. Investigation **28**: 1049, 1949.
2. Brainerd, H.; Lennette, E. H.; Meiklejohn, G.; Bruyn, Jr., H. B., and Clark, W. H.: The Clinical Evaluation of Aureomycin, J. Clin. Investigation **28**: 992, 1949.
3. Woodward, T. E.: Chloromycetin and Aureomycin: Therapeutic Results, Ann. Int. Med. **31**: 53, 1949.

interest because it provides precise information as to the length of the incubation period and also demonstrates the therapeutic effectiveness of aureomycin.

REPORT OF A CASE

History.—N. D. R., a 32 year old male office worker, entered the hospital on Dec. 1, 1949 with the complaints of fever, headache and cough. He had been well until four days prior to admission, when he noticed that the inhalation of cigaret smoke


DAY OF ILLNESS
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
TEMPERATURE °F
HOSPITALIZED
AUREOMYCIN 6H — ORAL
SEDIMENTATION RATE (WINTROBE)
9 22 40 37 32 13 13
COMPLEMENT FIXATION TITER-LYGRANUM
NEG. NEG. 1:40 1:160 1:640 1:640

Effectiveness of aureomycin in the treatment of human psittacosis (patient N.D.R.).

invariably initiated episodes of coughing. The next day he noted a mild diffuse aching in his chest and his cough persisted. On the day before admission, the patient complained of moderate malaise, a frontal headache, chills, fever and excessive perspiration.

Mode of Infection.—On Nov. 22, 1949, five days before the onset of illness, the patient had examined in his office a package containing vials of lyophilized psittacosis virus, strain 6BC. When he reached the third layer of vials in the box, he noted that one was broken about 1 cm. from the sealed end. He immediately replaced and covered the vials and instituted disinfection procedures. No other suspicious source of recent exposure could be discovered.

Past Medical History.—Recurrent episodes of a febrile illness of moderate severity had been noted since 1944. These illnesses were characterized generally by malaise, generalized aching, fever and recovery after bed rest. During some of these episodes the patient had pain and swelling in each wrist and had complained of pains in the hip joints and back. Although he had been examined and studied by several physicians, no exact diagnosis had been made.

Physical Examination.—The patient was a well developed white man who was moderately ill and coughed frequently during the examination. His temperature was 102.2 F., the pulse rate 110 per minute, the respiratory rate 22 per minute and blood pressure 142 systolic and 94 diastolic. The oropharynx appeared to be moderately injected and inflamed. Except for occasional coarse bronchial rales, no other abnormality could be found.

Laboratory Data.—On the day of admission the total leukocyte count was 7,200 with a differential count of 72 per cent polymorphonuclear leukocytes, 26 per cent lymphocytes, 1 per cent monocytes and 1 per cent eosinophils. The sedimentation rate was 8 mm. in sixty minutes (Wintrobe). Results of the complement test for psittacosis and the cold agglutinin test were negative. Routine examination of the urine disclosed no abnormality.

A roentgenogram taken on the first hospital day revealed a small linear area of increased density in the base of the left lung.

Hospital Course and Treatment.—On the second hospital day the patient continued to be moderately ill, with persistence of fever, headache and cough. The cough became productive at this time and samples of sputum and blood were secured for animal inoculation. Fine and medium rales were heard in the base of the left lung posteriorly. The sedimentation rate increased to 22 mm. per sixty minutes (Wintrobe).

Treatment with aureomycin, 0.75 Gm. every six hours, was started on the second hospital day after the laboratory work had been completed. Although there was no significant change in the patient's temperature during the first twenty-four hours of treatment, there was a moderate reduction of the headache, and in forty-eight hours it had disappeared. On the second day of treatment there was a slight decline in the temperature, and by the third day the patient was practically afebrile. A moderate increase in the area of pneumonia was noted on this day, and the sedimentation rate had increased to 40 mm. per 60 minutes. Two days later the pneumonic area was less dense and smaller. Fifteen days after the onset of illness, resolution of the pneumonia was almost complete and the sedimentation rate was practically normal.

The patient was discharged from the hospital twelve days after the onset of illness.

The psittacosis virus was not isolated from either sputum or blood.[4] Reactions to complement fixation tests for psittacosis using lygranum® antigen were negative on the fourth and eighth day of illness. The titer rose to 1:40 on the twelfth day and 1:640 on the fifteenth and seventeenth days. There was no change in the cold agglutinin, Brucella or Pasteurella tularensis titers.

The salient features of this illness are summarized in the chart.

COMMENTS AND CONCLUSION

Although the virus was not isolated in this case, the known exposure five days before the onset of illness, the clinical course and the serologic changes established the diagnosis of psittacosis. The striking improvement in this patient after forty-eight hours of treatment with aureomycin constitutes additional evidence that aureomycin is an effective therapeutic agent in human psittacosis.

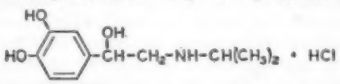
Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

R. T. STORMONT, M.D., *Secretary.*

ISOPROPYLARTERENOL HYDROCHLORIDE.—Isuprel Hydrochloride (WINTHROP-STEARNS).—α-(Isopropylaminomethyl)protocatechuyl alcohol hydrochloride.—1-(3',4'-Dihydroxyphenyl)-2-isopropylaminoethanol hydrochloride.—$C_{11}H_{17}ClNO_3$.—M.W. 247.72.—The structural formula of isopropylarterenol hydrochloride may be represented as follows:



Actions and Uses.—Isopropylarterenol is a sympathomimetic amine closely related in its actions to epinephrine and arterenol. There are certain important differences, however. The action on the smooth muscle of blood vessels is much less pronounced than with epinephrine or arterenol, and in some experimental animals, fall in blood pressure occurs. In man, the effects on blood pressure from therapeutic doses are usually unimportant, a slight rise in systolic and a slight fall in diastolic pressure occasionally being noted. Larger doses may cause considerable peripheral vasodilatation and, in some individuals, diastolic pressure may fall without a corresponding fall in systolic pressure. Such effects are usually fleeting.

Isopropylarterenol is a powerful cardiac accelerator and moderate dosage may produce an extreme tachycardia. The resultant cardiac insufficiency is characterized by precordial distress, palpitation, shock and electrocardiographic changes which suggest coronary insufficiency.

In some patients, isopropylarterenol may cause dizziness, nausea, tremors and excitement. These reactions are similar to those produced by other sympathomimetic agents.

The principal therapeutic effects of isopropylarterenol occur in the bronchi. The drug will overcome histamine-induced asthma in guinea pigs as well as protect against anaphylactic shock. In animals, the effects on the bronchi are quantitatively

4. This work was done by Dr. John Wagner and Miss Hermoise Katz.

greater than those observed following similar doses of epinephrine.

When administered sublingually or by oral inhalation in man, isopropylarterenol salts are effective in the treatment of mild and moderately severe asthma. After its oral inhalation the drug tends to liquefy tenacious mucus, thus exerting a mild expectorant action. The drug is effective in epinephrine-fast patients.

Dosage.—Sublingually, 10 to 15 mg. of isopropylarterenol hydrochloride is administered not oftener than every three to four hours or more than three times daily. By oral inhalation, in the treatment of acute asthmatic attacks, not more than 0.5 cc. of a 1:200 solution may be nebulized for each dose.

Isopropylarterenol should not be given subcutaneously or intravenously because of the profound myocardial stimulation produced by small doses administered by this route. Likewise, the drug should not be administered with epinephrine, although the two drugs may be used alternately.

Tests and Standards.—

Physical Properties: Isopropylarterenol hydrochloride is a white, odorless, slightly bitter, nonhygroscopic, crystalline solid. It melts between 166 and 172 C. It is freely soluble in water, soluble in alcohol and very slightly soluble in benzene and ether. A 1 per cent solution of isopropylarterenol hydrochloride is clear and colorless, and has a *p*H between 4.5 and 5.5. Aqueous solutions of isopropylarterenol hydrochloride become pink upon standing.

Identity Tests: To a solution of 1 Gm. of ammonium molybdate in 10 ml. of sulfuric acid, add about 10 mg. of isopropylarterenol hydrochloride: a dark brown to black color develops (*distinction from amphetamine, ephedrine, methamphetamine, naphazoline, phenylpropanolamine, phenylpropylmethylamine and tuaminoheptane*).

Dissolve about 20 mg. of isopropylarterenol hydrochloride in 10 ml. of water. To a 5 ml. portion of this solution add 5 drops of ferric chloride T.S.: an intense green color develops which becomes olive-green upon standing (*distinction from hydroxyamphetamine and phenylephrine which give a purple color*). To the other 5 ml. of the solution add a drop of nitric acid and about 0.5 ml. of silver nitrate T.S.: a white precipitate is formed which is readily soluble in excess ammonia (*chloride*).

Purity Tests: Dry about 1 Gm. of isopropylarterenol hydrochloride, accurately weighed, to constant weight (about 4 hours) over phosphorus pentoxide: the loss in weight does not exceed 1.0 per cent.

Char about 1 Gm. of isopropylarterenol hydrochloride, accurately weighed, over a low flame. Cool, then add 1 ml. of sulfuric acid and continue ignition until no carbon remains: the residue does not exceed 0.2 per cent.

Assay: Transfer about 0.15 Gm. of isopropylarterenol hydrochloride, accurately weighed, to a semi-micro Kjeldahl flask and digest with 5 ml. of sulfuric acid, 0.1 Gm. of selenium, 0.2 Gm. of mercuric oxide and 2.7 Gm. of potassium sulfate for about 1 hour after the solution has cleared. Dilute the clear solution to 15 ml. with water, make it alkaline with 40 per cent sodium hydroxide and then add 10 ml. of 40 per cent sodium thiosulfate. Distil the ammonia into 20 ml. of 4 per cent boric acid. Using a mixed indicator (1 part methyl red T.S.: 5 parts bromocresol green T.S.), titrate the ammonia liberated with 0.05 *N* sulfuric acid. Each ml. of 0.05 *N* sulfuric acid is equivalent to 0.0007004 Gm. of nitrogen: the nitrogen content is not less than 5.40 nor more than 5.80 per cent.

Transfer 0.5 Gm. of isopropylarterenol hydrochloride, accurately weighed, to a 250 ml. flask and dissolve in 50 ml. of water. To the solution add 4 ml. of 10 per cent nitric acid and a slight excess of silver nitrate T.S. Heat the solution on a steam bath until the precipitate coagulates, leaving a clear supernatant liquid. Cool the solution to room temperature and allow it to stand for about 2 hours. Filter through a tared sintered glass crucible, washing the precipitate by decantation several times with 0.1 per cent nitric acid. Transfer the precipitate to the crucible and wash with small portions of 1 per cent nitric acid until the washings are free of silver ions. Wash the precipitate with water, alcohol and ether, and dry it to constant weight at 105 C. Each Gm. of silver chloride is equivalent to 0.2474 Gm. of hydrogen chloride: the amount of hydrogen chloride is not less than 14.1 nor more than 14.8 per cent.

Transfer exactly 0.4 Gm. of dry isopropylarterenol hydrochloride to a 1000 ml. volumetric flask and fill to the mark with water. Mix thoroughly and transfer exactly 10 ml. of this solution to a 100 ml. volumetric flask and fill to volume with water. The solution exhibits an ultraviolet absorption maximum at 2800 A. The extinction coefficient, E (1%, 1 cm.), is 113 ± 3. The amount of isopropylarterenol hydrochloride is not less than 97 nor more than 103 per cent.

ISOPROPYLARTERENOL HYDROCHLORIDE TABLETS: *Identity Tests:* Crush 5 tablets and extract the isopropylarterenol hydrochloride with warm alcohol. Filter the extract, evaporate the alcohol and to the residue apply the identification tests listed in the monograph for Isopropylarterenol Hydrochloride beginning with, "To a solution of 1 Gm. of ammonium molybdate . . ."

Assay: Powder about 30 tablets and quantitatively transfer the equivalent of 10 tablets to a 100 ml. volumetric flask. Fill to volume with distilled water, shake the mixture thoroughly and filter the solution through a dry filter paper, discarding the first 20 ml. of filtrate. Transfer exactly 50 ml. of the remaining filtrate to a 1000 ml. volumetric flask and fill to the mark with water. Mix thoroughly and determine the transmission at 2800 A on a spectrophotometer. Calculate the amount of isopropylarterenol hydrochloride present with a standard curve obtained by plotting extinction against concentration for several solutions made up to contain between 0.01 and 0.06 mg. per ml. of pure isopropylarterenol hydrochloride. The isopropylarterenol hydrochloride content is not less than 95 nor more than 105 per cent of the claimed amount.

ISOPROPYLARTERENOL HYDROCHLORIDE SOLUTION: *Identity Tests:* To 1 ml. of the solution add 1 drop of ferric chloride T.S.: an intense green color develops which becomes olive-green on standing. Add 1 ml. of the solution to 5 ml. of a solution of 0.5 Gm. of ammonium molybdate in 5 ml. of sulfuric acid: a dark brown to black color develops.

Assay: Transfer exactly 10 ml. of the solution to a 1000 ml. volumetric flask and mix thoroughly. Determine the transmission at 2800 A on a spectrophotometer. Calculate the amount of isopropylarterenol hydrochloride present with a standard curve obtained by plotting extinction against concentration for several solutions made up to contain between 0.01 and 0.06 mg. per ml. of pure isopropylarterenol hydrochloride. The isopropylarterenol hydrochloride content is not less than 95 nor more than 105 per cent of the labeled amount.

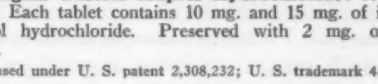
WINTHROP-STEARNS, INC., NEW YORK 13

Inhalant Solution Isuprel Hydrochloride 1:200: 10 cc. and 50 cc. bottles: A solution containing 5 mg. of isopropylarterenol hydrochloride in each cc. Preserved with 0.5 per cent chlorobutanol and 0.3 per cent sodium bisulfite.

Sublingual Tablets Isuprel Hydrochloride: 10 mg. and 15 mg. Each tablet contains 10 mg. and 15 mg. of isopropylarterenol hydrochloride. Preserved with 2 mg. of sodium bisulfite.

Licensed under U. S. patent 2,308,232; U. S. trademark 436,982.

ISOPROPYLARTERENOL SULFATE.—Isonorin Sulfate (CARROLL DUNHAM SMITH).—α-(Isopropylaminomethyl)-protocatechuyl alcohol sulfate.—1-(3′,4′-Dihydroxyphenyl)-2-isopropylaminoethanol sulfate.—$C_{22}H_{36}N_2O_6.H_2SO_4$.—M.W. 520.58.—The structural formula of isopropylarterenol sulfate may be represented as follows:



Actions, Uses and Dosage.—See monograph for Isopropylarterenol Hydrochloride.

Tests and Standards.—

Physical Properties: Isopropylarterenol sulfate is a white, odorless, slightly bitter, hygroscopic, crystalline solid. It melts between 118 and 122 C. It is freely soluble in water, slightly soluble in alcohol, and very slightly soluble in benzene and ether. A 1 per cent solution of isopropylarterenol sulfate is clear and colorless, and has a *p*H between 3.5 and 4.5. Aqueous solutions of isopropylarterenol sulfate become pink on standing.

Identity Tests: Isopropylarterenol sulfate responds to the color identity tests for isopropylarterenol hydrochloride. To 5 ml. of a solution containing 10 mg. of isopropylarterenol sulfate add 1 ml. of hydrochloric acid and about 5 drops of barium chloride T.S.: a finely divided white precipitate forms (*presence of sulfate*).

Purity Tests: Dry about 1 Gm. of isopropylarterenol sulfate, accurately weighed, to constant weight (about 20 hours) over phosphorus pentoxide: the loss in weight is not more than 7.0 per cent.

Char about 1 Gm. of isopropylarterenol sulfate, accurately weighed, over a low flame. Cool, then add 1 ml. of sulfuric acid and continue ignition until no carbon remains: the residue is not more than 0.3 per cent.

Assay: (Nitrogen) Transfer about 0.15 Gm. of isopropylarterenol sulfate, accurately weighed, to a semi-micro Kjeldahl flask and proceed with the nitrogen determination as directed in the monograph for Isopropylarterenol Hydrochloride. The amount of nitrogen present is not less than 5.20 nor more than 5.60 per cent.

(Isopropylarterenol Sulfate) Transfer exactly 0.4 Gm. of dry isopropylarterenol sulfate to a 1000 ml. volumetric flask and fill to the mark with water. Mix thoroughly and transfer exactly 10 ml. of this solution to a 100 ml. volumetric flask and fill to volume with water. The final solution exhibits an ultraviolet absorption maximum at 2800 A. The absorption coefficient, E (1%, 1 cm.) is 106 ± 3. The amount of isopropylarterenol sulfate present is not less than 97 nor more than 103 per cent.

ISOPROPYLARTERENOL SULFATE TABLETS: The tablets may be identified and assayed by the methods described in the monograph for Isopropylarterenol Hydrochloride tablets. The amount of isopropylarterenol sulfate present is not less than 95 nor more than 105 per cent of the labeled amount.

ISOPROPYLARTERENOL SULFATE SOLUTION: The solution may be identified and assayed by the methods described in the monograph for Isopropylarterenol Hydrochloride solution. The amount of isopropylarterenol sulfate present is not less than 95 nor more than 105 per cent of the labeled amount.

CARROLL DUNHAM SMITH PHARMACAL CO., NEW BRUNSWICK, N. J.

Inhalant Solution Isonorin Sulfate 1:200: 15 cc. vials: A solution containing 75 mg. of isopropylarterenol sulfate in each cc. Preserved with 0.5 per cent of chlorobutanol.

Sublingual Tablets Isonorin Sulfate: 10 mg. Each tablet contains 10 mg. of isopropylarterenol sulfate. Preserved with 2 mg. of sodium *m*-bisulfite.

PERTUSSIS VACCINE COMBINED WITH DIPHTHERIA AND TETANUS TOXOIDS (See New and Nonofficial Remedies 1950, page 508).

The following dosage form has been accepted:

CUTTER LABORATORIES, BERKELEY 1, CALIF.

Diphtheria and Tetanus Toxoid and Pertussis Vaccine Combined (Dip-Pert-Tet): 1.5 cc. and 7.5 cc. vials: Each cc. contains 55,000 million *H. pertussis* bacteria. Preserved with thimerosal 1:10,000.

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SATURDAY, SEPTEMBER 16, 1950

POLIOMYELITIS AND PROPHYLACTIC IMMUNIZATION

Elsewhere in this issue is a letter to the Editor on anterior poliomyelitis and pertussis and diphtheria immunization. This subject in comparatively recent months has been discussed in many medical circles. Its importance is still in dispute.

In March 1950, Dr. Martin[1] of London reported that during the years 1944-1949 he had accumulated 17 cases of single-extremity paralysis, all of which occurred within 28 days following injection of prophylactic antigens or penicillin. Nine out of 10 who received injections in the upper extremity had arm paralysis; four out of five who received injections in the lower extremity had leg paralysis; in two the site of injection was unknown. The diagnosis in almost all of these cases was poliomyelitis, and the author postulated that the trauma of injection might influence the site of paralysis in poliomyelitis.

During an epidemic in Melbourne, Australia, in 1949, attention was directed to a few patients who had been given injections of diphtheria toxoid or pertussis vaccine, or both, shortly before the onset of symptoms of poliomyelitis. It is likely that the parents of such patients were inclined to associate the inoculation with the development of the disease, though their medical attendants either dismissed the possibility of a causal relationship or else considered the effects to be due to radiculitis caused by the vaccine. However, McCloskey[2] inquired into the history of immunization in the course of routine investigation of the reported cases of poliomyelitis. Among the 340 cases investigated, he found 31 children who had been inoculated within three months of onset. Paralysis was distinctly more frequent in the inoculated than in the uninoculated extremities. On more precise analysis of the time relation he found that the interval from the last inoculation to onset of symptoms ranged from five to 32 days in all except two patients, whose interval was approximately 60 days. From the evidence which he collected, he concluded that there was a relation in a number of cases between prophylactic injections and the subsequent development of paralytic poliomyelitis in the epidemic. Suggestions that the prophylactic materials or the hypodermic needle had been contaminated with virus were dismissed as improbable. He was inclined to favor the hypothesis that local trauma was reflected in corresponding areas in the cord in the form of central changes which favored the activation of virus already present in the central nervous system. Martin's observations from London and McCloskey's in Australia were further confirmed and extended by Geffen's[3] investigation of poliomyelitis that occurred in children in the Borough of St. Pancras, London, during the fall of 1949. More recently, Hill and Knowelden[4] published a careful statistical analysis of the data obtained during the 1949 epidemic in England and Wales and included comparisons with a selected control group. The results also lend confirmation to the above observations. Each of these four reports show that the usual 1:2 or 1:3 ratio of arm to leg paralysis was reversed in young children who received prophylactic injections predominantly in the arms within a 28 day period prior to the onset of the disease and that the limb recently inoculated was more frequently paralyzed than other limbs.

These data are consistent with a hypothesis that inoculation of children with diphtheria and/or pertussis antigens during a poliomyelitis epidemic may increase the risk of development of paralysis in the inoculated limb, but the data are not adequate to establish the fact. It must be granted that the observations are impressive in numbers and consistency, and it seems improbable that they can be due to errors of selection or chance variation. The association must be conceded; the causal relationship has yet to be established.

Epidemiologic case records collected during the course of recent epidemics in the United States have been reviewed for information bearing on this question. To date the data available are inadequate to confirm or to refute the British and Australian findings. There is need for further carefully planned studies of the frequency of distribution of paralysis among groups of children immunized as compared with nonimmunized children in the same community who are as nearly alike as possible with regard to age, susceptibility and exposure. Furthermore, the question can be approached experimentally. It obviously would be of interest to determine whether intramuscular injections of diphtheria toxoid or pertussis vaccine or both can modify the course of the experimental infection in the monkey.

Pending the results of further studies, the concept is prevalent in some quarters that children in whom paralytic poliomyelitis develops may have the pattern

1. Martin, J. K.: Local Paralysis in Children After Injections, Arch. Dis. Childhood **25**: 1-14 (March) 1950.
2. McCloskey, B. P.: The Relation of Prophylactic Inoculations to the Onset of Poliomyelitis, Lancet **1**: 659-663 (April 8) 1950.
3. Geffen, D. B.: The Incidence of Paralysis Occurring in London Children Within Four Weeks After Immunization, M. Officer **83**: 137-140 (April 8) 1950.
4. Hill, A. B., and Knowelden, J.: Inoculation and Poliomyelitis: A Statistical Investigation in England and Wales in 1949, Brit. M. J. **2**:1-6 (July 1) 1950.

of their paralysis altered by injection of diphtheria and/or pertussis antigens during an epidemic. In view of available evidence, it might be advisable to postpone diphtheria and/or pertussis immunization during a poliomyelitis epidemic. Postponement of such immunizations for a few months, until the end of the epidemic, would appear particularly discreet when during these few months the children are not likely to be exposed to diphtheria or pertussis, i. e., when these diseases are not unduly prevalent in the community at the same time as the poliomyelitis epidemic.

THE CLEVELAND SESSION OF THE AMERICAN MEDICAL ASSOCIATION

The fourth annual Clinical Session of the American Medical Association will be held in Cleveland Dec. 5-8, 1950. This meeting stresses clinical practice with emphasis on subjects of interest for the general practitioners. New information on drugs, equipment, books and other products will be found in the Technical Exhibits. The Scientific Exhibit again will be outstanding with special demonstrations on fractures, diabetes, rheumatism and arthritis. Cancer, pediatrics, chest diseases and surgical procedures are among the subjects that will be correlated with clinical presentations. Whether one is interested in anesthesiology, cardiovascular diseases, dermatologic problems, fluid balance, gastrointestinal disturbances, neuropsychiatric procedures, obstetrics or anterior poliomyelitis, he will obtain information at the Cleveland session.

Clinical demonstrations will be under the guidance of outstanding clinical teachers. Actual cases will be presented and discussed. Diagnosis, treatment and preventive measures as they apply to daily practice will receive the greatest attention.

Each clinical meeting will be limited in attendance, so that smaller groups will make it possible for the members of the audience to enter into the discussions and inquire about their own medical problems.

Color television again will be featured, and a program of surgery, clinical treatment and examination will be telecast in color to Convention Hall from University Hospital. Smith, Kline & French Laboratories are sponsoring this color television.

The second session of this year by the House of Delegates will provide opportunity for this body to discuss current problems, many of which face the medical profession. The House of Delegates is the policy-making body that is elected by the medical profession to guide the affairs of the American Medical Association. These meetings are open to all members of the medical profession, and visitors are welcome to attend the sessions which will be held on Tuesday and Wednesday of the week of the session.

One of the actions of the House of Delegates that has become known from one end of the country to the other for the honor involved is the selection of a recipient for the General Practitioner's Award. Each county medical society may nominate a man who in its opinion deserves recognition for his efforts as a general practitioner or family doctor. Each state medical society selects its candidates from the group submitted by the county societies within the state. The states' nominations then are reviewed by the Board of Trustees of the American Medical Association, which selects three names to present to the House of Delegates. One of these three nominees is selected to receive the award as General Practitioner of the Year.

The quality and attendance of the third Clinical Session, which was held in Washington, D. C., in 1949 attest to the success of this meeting of the American Medical Association. Those who wish to attend the Cleveland session should make their plans now. Reservations for hotel rooms may be forwarded to the Chairman of the Subcommittee on Hotels, American Medical Association, Hotel Reservation Bureau, Cleveland. Those who wish may register in advance by filling out an advance registration coupon and forwarding it to the American Medical Association, Chicago. Forms for hotel reservations and advance registration coupons may be obtained from the Association's headquarters or found in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

HOMOLOGOUS SERUM HEPATITIS

Human plasma is too important a therapeutic agent for the medical profession to entertain doubts concerning its safety. The case reports published in this issue of THE JOURNAL seem to indicate that in some instances sterilization has failed and homologous serum hepatitis has been transmitted to recipients. The reasons for failure of sterilization and the source of each case of homologous serum hepatitis must be determined. A review of causes of the disease and the precautions necessary to prevent its transmission, however, reveals the difficulties of this task.

One difficulty is inherent in the very nature of viral hepatitis, since it is often impossible to determine whether the disease has been transmitted by blood or its derivatives (homologous serum hepatitis [1]) or is due to other causes (acute infectious hepatitis [2]). This is well illustrated by a recent study of 287 patients with viral hepatitis [3]: Only 40 had received transfusions with blood or a derivative, 51 had been given injections with arsenicals, 39 had received miscellaneous injections and in 22 hepatitis developed during pregnancy; in the remaining 148 the probable cause could not be determined. The disease in the majority of the cases

1. Oliphant, J. W.; Gilliam, A. G., and Larson, C. L.: Jaundice Following Administration of Human Serum, Pub. Health Rep. **58**: 1233-1242 (Aug. 13) 1943. Neefe, J. R.; Stokes, J., Jr.; Reinhold, J. G., and Lukens, F. D. W.: Hepatitis Due to the Injection of Homologous Blood Products in Human Volunteers, J. Clin. Investigation **23**: 836-855 (Sept.) 1944.

2. Findlay, G. M., and MacCallum, F. O.: Note on Acute Hepatitis and Yellow Fever Immunization, Tr. Roy. Soc. Trop. Med. & Hyg. **31**: 297-308 (Nov.) 1937.

3. Ratnoff, O. D., and Mirick, G. S.: Acute Hepatitis in General Hospital Practice: Role of Transfusions and Inoculations, Bull. Johns Hopkins Hosp. **85**: 301-309 (Oct.) 1949.

studied may be classified as acute infectious hepatitis. However, it is noteworthy that 90 patients received injections of arsenic or other medicaments and did not receive blood or a derivative. This substantiates the observation that the virus may be transmitted from a known patient or a carrier by skin puncture with an improperly sterilized instrument. Instruments contaminated with virus require heat sterilization by autoclave or by boiling in water for 15 minutes.[4] Hence, when viral hepatitis appears after transfusion of blood or its products it is difficult to establish whether blood or another avenue of infection is responsible.

Because it is used more frequently, whole blood transfusion is responsible for more cases of homologous serum hepatitis than plasma. Of the 40 cases previously cited, 28 patients had received only blood; 8, both plasma and blood; 2, plasma alone; 1, icterogenic yellow fever vaccine, and 1, human globulin. Other investigators [5] report a 0.2 to 0.4 per cent incidence of hepatitis following whole blood transfusion. The percentage incidence is higher with plasma because its unit is usually derived from a pool of many samples; one infected sample, by contaminating a whole pool, endangers all recipients. One report [6] presented an incidence of 3.4 per cent possible and 2.1 per cent probable hepatitis following transfusion with unsterilized plasma. Another report [7] records an incidence of 5 per cent. These facts demonstrate the need for careful selection of blood donors and for sterilization of plasma.

When Oliphant [8] reported that ultraviolet irradiation could inactivate the virus of hepatitis in icterogenic serum and this observation was confirmed by other investigators,[9] it was hoped that plasma could be eliminated as a source of homologous serum hepatitis. The demonstration that ultraviolet irradiation was apparently without significant effect on plasma proteins or antibodies [10] led to approval of the procedure by the National Institutes of Health as a method of sterilization. During the last two years only a negligible number of sporadic cases of hepatitis have been reported following extensive use of irradiated plasma.[11]

The case reports published in this issue of THE JOURNAL do not invalidate the findings of the original investigators but indicate that the method can fail when large quantities of plasma are being processed. It is imperative that failures be traced to their source, if possible, and chance of their recurrence eliminated. It is evident from the facts outlined that a concerted effort by investigators, equipment manufacturers, processors and users of plasma is necessary to control conditions so that the cause for single cases of hepatitis may be established and the chain of transmission broken.

Investigators should seek a more direct test for virucidal effect of ultraviolet irradiation than the present standard Aerobacter aerogenes sterility test, which only indirectly measures the sterilizing power of the ultraviolet lamp for virus. It is performed after routine irradiation has been completed by irradiation of a separate plasma specimen artificially seeded with A. aerogenes. Therefore it does not indicate the sterilizing efficiency of the lamp during actual processing of the plasma intended for commercial distribution.

Experiments of Oliphant and Hollaender [12] demonstrated the necessity for critical requirements for rapid sterilization of plasma by revealing that one type of apparatus inactivated infected serum by exposure for 2½ seconds while another failed to accomplish sterilization in six minutes. Equipment should therefore fulfil certain requirements: The intensity of emissions must be powerful, the range under 2,600 Å, the fluid close to the source of light and the film of plasma very thin. The responsibilities of manufacturers of equipment also include performance of more thorough tests of effectiveness and duration of efficiency of apparatus. There should be added adequate, continuous measuring and graphic recording devices to indicate the constancy and intensity of the ultraviolet emission.

Processors of irradiated plasma should screen blood donors carefully, eliminating those with a history of suspicious illness or contact with hepatitis. If possible, prospective donors should be further checked by physical examination and one of the accepted tests for liver function. Every processor and distributor should keep careful records of sources of blood and of the distribution of blood, plasma and other derivatives. In addition, processors must maintain standard conditions for sterilization. Equipment efficiency should be ascertained by a continuous, graphic, permanent record of the ultraviolet intensity during irradiation of every batch of plasma. Needles and apparatus used for collection of blood must be sterilized by autoclaving or boiling.

Users of plasma in both institutional and private practice should eliminate possible collateral causes of transmission of viral hepatitis by requiring that all materials used to puncture the skin or to collect blood be sterilized in boiling water or by autoclave. Prospective blood donors should be screened as previously indicated. The name of the source and the lot number of blood or derivative should be recorded on the patient's

4. Salomon, M. H.; King, A. J.; Williams, D. I., and Nicol, C. S.: Prevention of Jaundice Resulting from Antisyphilitic Treatment, Lancet **2**: 7-8 (July 1) 1944. Darmady, E. M., and Hardwick, C.: Syringe-Transmitted Hepatitis, Lancet **2**: 106 (July 28) 1945.

5. Sheinberg, I. H.; Kinney, T. D., and Janeway, C. A.: Homologous Serum Jaundice: Problem in Operation of Blood Banks, J. A. M. A. **134**: 841-848 (July 5) 1947.

6. McGraw, J. J., Jr.; Strumia, M. M., and Burns, E.: The Incidence of Posttransfusion Serum Hepatitis, Am. J. Clin. Path. **19**: 1004-1015 (Nov.) 1949.

7. Brightman, I. J., and Korns, R. F.: Homologous Serum Jaundice in Recipients of Pooled Plasma, J. A. M. A. **135**: 268-272 (Oct. 4) 1947.

8. Oliphant, J. W.: Jaundice Following Administration of Human Serum, in Harvey Lectures, 1943-1944, Lancaster, Pa., Science Press Printing Company, 1944, vol. 39, pp. 254-272.

9. Blanchard, M. C.; Stokes, J., Jr.; Hampil, B.; Wade, G. R., and Spizizen, J.: Methods of Protection Against Homologous Serum Hepatitis: Inactivation of Hepatitis Virus SH with Ultraviolet Rays, J. A. M. A. **138**: 341-343 (Oct. 2) 1948.

10. Wolf, A. M.; Mason, J.; Fitzpatrick, W. J.; Schwartz, S. O., and Levinson, S. O.: Ultraviolet Irradiation of Human Plasma to Control Homologous Serum Jaundice, J. A. M. A. **135**: 476-477 (Oct. 25) 1947.

11. Bulletin on Blood and Derivatives, Conference on Blood Sterilization, Committee on Blood and Blood Derivatives, National Research Council, Division of Medical Sciences, 1949.

12. Oliphant, J. W., and Hollaender, A.: Homologous Serum Jaundice: Experimental Inactivation of Etiologic Agent in Serum by Ultraviolet Irradiation, Pub. Health Rep. **61**: 598-602 (April 26) 1946.

chart. Physicians should not withhold blood or plasma from any patient because of these adverse reports; however, their indiscriminate use should be discouraged.

This coordinated effort will secure more accurate knowledge of the causes of individual cases of homologous serum hepatitis, decrease accidental transmission of the disease and yield valuable information concerning the sterilizing efficacy of ultraviolet irradiation.

THE VALUE OF ADVERTISING

An advertising campaign by the Santa Clara County (California) Medical Society to acquaint the public with its views on medical questions has been declared one of the outstanding advertising performances of 1949 by newspapers in the United States and Canada. It is one of 50 campaigns chosen from hundreds of entries for inclusion in the 1950 edition of "The Blue Book of Newspaper Advertising," which is published by the Bureau of Advertising, American Newspaper Publishers Association.

This annual "honor roll" of newspapers noted the society's monthly series of advertisements each of which outlined some phase of the society's policies concerning free medical care, fees for medical services and the benefits of voluntary versus compulsory health insurance. The advertisements were published from April through November. Response to the campaign was prompt; within a short time hundreds of inquiries were received for information on the availability and benefits of voluntary health insurance in the area. In addition, commendatory comments were received from social service organizations, public health officials, nurses and welfare department employees because the society had established clearly defined policies and was making them known to the public. Reprints were demanded, and the story of the campaign was read into the Congressional Record. So successful was the campaign, the Santa Clara County Medical Society voted to double the advertising schedule in the first six months of 1950.

This is only one example of the value of advertising as presented in the case histories of 50 outstanding campaigns in the Twelfth Annual Blue Book of the Bureau of Advertising of the American Newspaper Publishers Association. An automobile which was fourth in automotive sales reached an all-time high in sales; sales for another automobile were increased 38 per cent over 1948 and for still another automobile 49.8 per cent; an electric razor increased its margin of sales leadership over the second brand by 13 per cent; sales for an insecticide increased almost 500 per cent; for a smoked meat, 34 per cent; for a brand of frozen foods, 115 per cent; for a soft drink, 23 per cent; for a popular magazine, 33.4 per cent, and for a handkerchief, 157 to 175 per cent.

Advertising is an effective way of attempting to attract and hold the attention of large audiences. While not inexpensive if used frequently and extensively, it will, in a country where healthy competition and freedom exist, decrease the cost of an article by increasing volume of sales and eventually pay for itself. More important in some instances, it sells an idea rather than an article, or it may pose a problem or a solution. Or it may be used as a revealing spotlight to focus attention on a questionable practice or group of malicious planners. Advertising, freedom of the press, American ingenuity and old-fashioned but ever needed "git up and go" have made this country what it is. What it will become rests to a large extent on the preservation and unstinted employment of these factors.

The American Medical Association has launched an advertising campaign that is intended to help preserve the freedom this country has enjoyed. The campaign is offered to draw attention to the right way of seeking health as sponsored by the medical profession and thousands of other groups and to the wrong way which is advocated by a comparatively few selfish, arrogant politicians or political hangers-on or in some instances by well meaning but misled citizens. This advertising program will include advertisements in approximately 11,000 newspapers and leading national magazines and spot announcements over 1,000 or more radio stations. It will be used to sell voluntary health insurance, whether it is offered by medically founded nonprofit organizations, accident and health insurance companies, or labor, industrial or fraternal groups. American medicine's objective is to increase the availability of good medical care, and the advertising copy, which will appear in October, will be designed to make the American people health insurance conscious so that prepaid health protection will gain even broader acceptance to cushion the economic shock of illness.

The copy also will focus attention on the dangers of government-controlled economy and the loss of individual freedom, individual initiative and freedom of opportunity that accompanies such regimentation. The National Education Campaign of the American Medical Association stresses the need for preserving faith in and active support of the American way of life. Most Americans do not want permanent government control over their medical and other personal affairs, although they are willing to accept temporary economic controls during a crisis such as war. However, they must be permitted to see the insidious ways in which socialism can creep into our lives. American medicine is issuing an invitation to other professions, to industries and businesses to participate in the spirit behind the advertising campaign so that there will be little room for doubt that "The Voluntary Way is the American Way."

The end result of this tremendous and unique undertaking will be a further check on the advances of the planners of socialism and regimentation. The dissipation of the dangers of government regimentation of the American people is dependent on the whole-hearted support of all who believe in freedom. The sacrifice of our fighting men who are engaged in a fight against aggression and tyranny on foreign soil will be futile if

here at home we lose permanently the basic freedoms on which this nation has been created.

In its new role in the advertising field American medicine is not attempting to sell itself. Nor is it trying to maintain a system or advantage for its sole use. No, it is trying to sell what has been our heritage in this country—faith, hope, freedom. It believes as do most Americans in self help and self preservation, in pride of achievement, in the joy of accomplishment. American medicine in its advertising is not selling an article, nor even a service. It is selling an ideal in the hope that others who believe in this ideal will raise their voices to say, "This is our country. We are thankful for what it has given us and others throughout the world. We want to maintain the basic principles on which it has grown to greatness so that we can continue to be self sufficient and share with the less fortunate our blessings." There are many millions of Americans who believe in such a doctrine. Let us encourage them to say so.

PREWAR AND POSTWAR DISTRIBUTION OF PHYSICIANS

The publication of the 1950 *American Medical Directory* and of preliminary 1950 population estimates by the United States Bureau of Census has raised questions concerning the distribution of physicians in relation to population. The new census data indicate that many shifts in the population have taken place since 1940. The induction of approximately 40 per cent of the physicians into the armed services during World War II created a maldistribution of physicians, although the health of civilians was remarkably good during the war. Physicians did not redistribute themselves over the country in a pattern similar to that which prevailed before the war. Thus some are asking whether physicians are now more evenly distributed in relation to the population of each section of the country than before the war.

The Bureau of Medical Economic Research has recently published Bulletin 78, entitled Comparisons of State Physician-Population Ratios for 1938 and 1949,[1] which gives a partial answer to the question on the comparative evenness of the distributions of physicians in 1949 and in 1938. Certain changes in the classification procedures of the Directory Department required adjustments in both the 1938 and 1949 data to make them comparable. State physician-population ratios (the number of physicians per 100,000 persons) were computed (1) for all nonfederal physicians, (1 *a*) for full time specialists and (1 *b*) for general practitioners and part time specialists combined; the latter two groups constitute the physicians in private practice. The remaining nonfederal physicians (1 *c*) are interns, residents, those employed by industrial and insurance firms, local and state public health officers, retired and others not in private practice.

It was found that all nonfederally employed physicians were less evenly distributed in 1949 than they were in 1938 in relation to the populations of the several states. Contrariwise, it was found that both full time specialists and general practitioners (including part time specialists) in relation to the population of the several states were more evenly distributed in 1949 than in 1938. In both years general practitioners and part time specialists—"family physicians"—were much more evently distributed in relation to state populations than were either full time specialists or the entire group of all nonfederally employed physicians.

The inherent defects of physician-population ratios are clearly set forth in this bulletin. The number of physicians of all types per 100,000 population in the entire United States increased from 131 in 1938 to 135 in 1949. If the national physician-population ratio had remained stationary, the amount of available physicians' services per 100,000 persons would have increased at least one third during this 11 year interval because of phenomenal increases in the technological efficiency of physicians. Improved methods of diagnosis and treatment, greater use of auxiliary medical personnel and the increase in the percentage of patients treated in the office and hospital economize on the physician's time. Thus the effective supply of physicians cannot be satisfactorily measured by physician-population ratios in this period (1938-1949) of rapid gains in "output per physician." State ratios are particularly defective; most persons in the southern part of a state rarely obtain the services of physicians in the northern part of the state and vice versa; furthermore, many persons cross state lines to consult physicians, particularly specialists. Physician-population ratios for any area measure neither supply nor demand completely.

While admitting these obvious limitations of state physician-population ratios—even for medical service areas—the conclusion that each of these two types of physicians in private practice were more evenly distributed in relation to the population of the several states in 1949 than they were in 1938 should silence many of the uninformed critics of the distribution of physicians in the United States. Certainly it can be said that, if the reverse had been found to be the case, these critics would have made widespread use of the fact. The geographic distribution of the members of any profession is never perfect. Considering the extensive migration of both physicians and their potential patients between 1938 and 1949, this strong indication of a slight increase in the evenness of the distribution of physicians in relation to the populations of the several states is a tribute to the efficiency of a free society in which physicians and all other persons are free to migrate from one state to another.

1. By Frank G. Dickinson, Ph.D., Director, and Charles E. Bradley, Ph.D., Associate in Economics, Bureau of Medical Economic Research in cooperation with Frank V. Cargill, Director, Directory Department. The conclusions as to relative variability in 1938 and 1949 are based on changes in the coefficients of variation and of quartile deviation of the state ratios. A copy of Bulletin 78 may be obtained by writing to the Bureau of Medical Economic Research, American Medical Association, 535 North Dearborn Street, Chicago 10.

WASHINGTON NEWS

(From the American Medical Association Washington Office)

The Navy's Medical Reserve Officers

Even before President Truman signed the doctor-draft law, the Navy started applying the reasoning expressed by Congress—that men who have served the least time should be called first. Under this new policy, the Navy now is concentrating on its 1,200 reserves who were educated under the V-12 program but have spent little or no time on active duty.

Until passage of the law, the Navy generally had confined its calls to members of organized units, reasoning that these men had expressed the greatest interest in Navy service and were receiving the greatest peacetime benefits. Almost without exception these men were physicians who had served actively during World War II. But from now until the list of 1,200 reserves is exhausted, the Navy will be calling former V-12's, thus deferring calls on men with long periods of active duty to their credit. By the time this group is in uniform, it is probable that another 2,500 or so former V-12's who were not in the reserves will be made available, either as volunteers or under the mandatory provisions of the new law.

In applying the equality of service principle, the Navy is able to move faster than the Army because it had the 1,200 V-12 reserves. Although twice as many men participated in the Army's ASTP as in Navy's V-12 program, few of the Army's medical students joined the reserves. However, Navy officials emphasize that the present V-12 reserves will not meet all their needs and that a few older reserves, particularly specialists, will still have to be called. The Air Force situation continues to be a problem, but so far the Air Force has issued no mandatory calls on individual medical reserves, organized medical reserves or Air National Guard medical units. Major General Harry Armstrong, the Air Surgeon, told THE JOURNAL, "At the moment we do not have to make mandatory calls on the reserves. Unless the situation worsens we do not believe we will have to resort to such calls." General Armstrong said the Air Force is hopeful that it can put off mandatory calls until former ASTP men are available as a result of the doctor-draft law. He also said that an encouraging number of former ASTP men currently are coming into the reserve and asking for active duty.

Roentgen Examinations of Inductees

Under chairmanship of Representative Paul Kilday (Democrat, Texas) a House Armed Services subcommittee looked into the question of roentgen examinations of inductees by private roentgenologists, some of whose fees had been discussed in newspapers. None of the physicians mentioned in the stories was called. The committee heard from representatives of the three military Surgeons General and from two Washington men, one a leading roentgenologist and the other a hospital manager. Later Mr. Kilday indicated that the whole thing is a closed matter. He said, "The evidence has not shown unreasonable compensation. The Army soon will be able to make nearly all of its own x-ray examinations. In the case where the fees paid private specialists seem excessive, an effort will be made to reduce them."

Major General George E. Armstrong, the Army's Deputy Surgeon General, outlined reasons for the private contracting of roentgen examination of inductees and cited cost figures to justify the Army's payment of $5 per chest roentgenogram and interpretation. He said that the Army released most of its World War II x-ray equipment at a time when civilian hospitals and clinics were in need of such equipment. Furthermore, he said it was considered unwise to stockpile x-ray equipment, which deteriorates in storage and tends to become obsolete rapidly. Among other cost examples, he said that the Veterans Administration charges the Army $5 for each roentgenogram and that VA pays $10 for each roentgenogram on private contract.

General Armstrong said it was the Army policy to handle chest roentgenograms on the following priority basis: 1. Where induction stations have x-ray equipment, examinations are conducted at those stations. 2. Where other military facilities are reasonably available and staffed, these are used. 3. VA or other government facilities are used next in order, if available, followed by municipal facilities. Only as a last resort, General Armstrong said, are arrangements made with private hospitals or individuals.

Rear Admiral Clifford Swanson, the Navy's Surgeon General, explained that the Navy used a different system, deferring chest roentgenograms until new men reach training centers, then screening them first with relatively inexpensive x-ray processes. He had no complete cost figures on this procedure.

Dr. Ralph M. Caulk, Washington, D. C., roentgenologist, said his organization estimates that 72 per cent of its gross income goes for expenses and that actual cost of chest roentgenograms now probably was about $4. The manager of a local hospital, where chest roentgenograms are given to a large number of inductees at the $5 rate, said that the ordinary civilian charge is $10.

Left unanswered at the conclusion of the hearing were two committee questions: 1. Why was no effort made by the Army to reduce the $5 payment in view of the big volume of cases? 2. Is it possible for one roentgenologist adequately to interpret 220 roentgenograms a day, as reported from one city?

Model Law for Admitting Mental Patients

Governors of all states are being supplied with copies of a model law covering procedures for hospitalization of mental patients. It was prepared under direction of Dr. Robert H. Felix, director of the National Institute of Mental Health, and Alanson W. Willcox, general counsel of the Federal Security Agency. The National Advisory Mental Health Council and a number of nongovernmental legal and psychiatric authorities were consulted. In a letter accompanying copies of the model law, the Federal Security Administrator said: "The essence of the law, I believe, is in its assurance to persons who are mentally ill of, first, maximum opportunity for prompt medical care; second, protection against emotionally harmful or degrading treatment, and third, protection against wrongful confinement and deprivation of rights." An analysis of state laws covering treatment of the mentally ill shows that 26 provide jury trial for commitment, 33 permit detention in jail and 40 permit transportation by peace officers. On the credit side, 39 states provide for temporary or emergency hospitalization and all but eight allow voluntary hospitalization. Copies of the model law may be obtained by writing to FSA Press Service, Washington, D. C., or the National Institute of Mental Health, Public Health Service, Bethesda 14, Md.

Personnel Changes; Notes

Dr. W. Randolph Lovelace II (Albuquerque, N. Mex.) and Dr. James Stevens Simmons (Dean, Harvard School of Public Health) have been appointed to the Armed Forces Medical Advisory Committee. Dr. Lovelace has specialized in aviation medicine and Dr. Simmons in preventive medicine. . . . With 32,903,000 children and youths going back to school this month, the Office of Education reports that "Thousands of boys and girls will be taught in buildings that may be unsanitary and unsafe." The office says that 10 school children a day are killed

by fires. . . . Meeting in Omaha, Neb., the American Federation of Government Employees (A. F. L.) with a membership of about 50,000, urged that retired federal employees receive complete medical care at government expense. . . . Physicians in the District of Columbia are taking the lead in urging Congress to give the District $290,000 for civil defense. The House cut the local preparedness fund to $30,000. . . . The new $14,000,000 Naval Hospital at St. Albans, N. Y., will be finished three months ahead of schedule, by January 1951. Representing the Navy's largest lump sum contract ever awarded for a hospital, St. Albans will consist of eight modern buildings. . . . With enactment of the doctor-draft law, the Army's Surgeon General received a word of praise for his efforts to defer call of medical reservists "until all efforts to recruit volunteers had failed." The commendation came from the executive council of the Society of U. S. Medical Consultants of World War II.

Answers to Questions About Drafting Doctors

The following information was prepared in the Washington Office of the American Medical Association in an attempt to answer questions which might grow out of the doctor-draft.

Who Must Register?

Physicians and dentists who have not reached the age of 50 and are not members of military reserves definitely will be required to register; the law was written to reach this group. The President also may require the registration of veterinarians, optometrists, pharmacists, osteopaths and/or those in other specialist categories. But the law specifically excludes military reserves; they already are subject to military orders.

Who are Eligible for Draft, and in What Order Will They Be Called?

Any registrant (above) is subject to induction if acceptable to the military. The law provides that registrants will be called up on the following priority:

1. Former ASTP and V-12 men who have not served on active duty (military, Coast Guard or Public Health Service) and others deferred from service to continue their education during World War II, and who have had less than 90 days of active duty.

2. Members in the above groups who have had more than 90 days active duty but less than 21 months.

3. With no reference to above groups, those who did not have active service (military, Coast Guard or Public Health Service) subsequent to Sept. 16, 1940; this could include post-war medical graduates as well as other physicians who have not served and have not reached their fifty-first birthday.

4. All others, including World War II non-reserve veterans. Men in this group are to be called on the basis of extent of duty, those with the least duty first.

When Will the Draft Take Effect?

Not until the President sets a time for registration. The registration deadline may be announced before this is printed. Men will register at "appropriate points of registration" in the community. After registration, Selective Service will place the man in one of the four classes listed above. Then, if he is to be called, he will be ordered up for his physical examination. After this he has 21 days to set his affairs in order before reporting to the Armed Forces Induction Station. Subsequently, he will be offered a commission and assignment to a service.

Can a Registrant Get a Reserve Commission?

Yes, if acceptable to the military. If the man applies for and is granted a reserve commission, he will come under military orders and Selective Service will not process him further.

Who Gets the $100 Pay Bonus?

Every reserve officer called to duty, on a voluntary or involuntary basis, receives the extra $100 per month. Men required to register under this act also may qualify for the $100—but only if they volunteer prior to their actual induction.

Who Is Eligible for Deferment?

Actual deferment is at the discretion of local Selective Service boards. However, the law states that "the President is authorized to provide for" certain deferments. Action under this clause would be based on the registrant's previous military service, his dependency status and any undue hardship that might ensue.

Will the Medical Profession Advise Selective Service on Men to Be Called?

Yes. The law provides for establishment of a National Advisory Committee "which shall advise Selective Service system and coordinate work of state and local volunteer advisory committees with respect to selection of needed" professional personnel. The Committee will be composed of men "outstanding in medical, dental and allied services." The medical and dental professions must be represented on the National Committee, but representation of other professions is not required. The law does not control local advisory committees; whether these are established and made effective depends on local conditions.

Will the Draft Create Critical Doctor-Shortage Areas?

Conceivably it might. But the law itself attempts to set up safeguards. It says that the national, state and local committees shall "give appropriate consideration to" civilian as well as military medical and dental requirements. Another section underscores this policy: "Maintenance of national health, safety or interest" should be considered in granting deferments. In calling up reserves, Army commanders also are under orders to give careful consideration to doctor-shortage areas.

How Many Will Be Drafted?

Military medical officers hope that enough men now will volunteer to meet requirements. They are prepared to use the law's authority for mandatory inductions but are confident that these cases will be rare. They are hopeful that the $100 bonus, which is denied to men involuntarily inducted under this act, will induce most registrants to volunteer.

Other Provisions

One section of the law authorizes transfer of medical officers from one service to another, with consent of the officer and of the services involved. The officer is protected in promotion, retirement and pay. . . . Another provides that any person who has served in the armed forces or Public Health Service after Sept. 16, 1940, and is recalled, may be "promoted to a grade commensurate with his education, experience and ability." . . . The law states "it is the sense of Congress" that Selective Service deferments will be granted to premedical, predental and allied students in numbers equal to the present such enrolment. This ruling more or less formalizes the present Selective Service policy and sets a total figure for deferments in each professional category. . . . Inductees under the doctor-draft law are required to serve 21 months. . . . Anticipation is that Advisory Committees will operate like the Procurement and Assignment Boards of World War II. . . . The bonus of $100 now goes to all reserves, whether called up voluntarily or involuntarily; on this Congress reversed the comptroller general, who had ruled that reserves called up involuntarily were not eligible. . . . The doctor-draft law, an amendment to the Selective Service Act, expires with that law next July, unless extended by Congress.

ORGANIZATION SECTION

Official Notes

Abstract of Minutes of Meetings of the Council on Medical Service

The Council on Medical Service held several sessions during the recent Annual Meeting in San Francisco. The opening session started at 1:00 p. m., Saturday, June 24, and the final session adjourned at 11:30 a. m., Thursday, June 29.

The following members were present during most of the sessions: Drs. James R. McVay, Chairman; Joseph D. McCarthy; Elmer Hess; Thomas A. McGoldrick; J. D. Hamer; R. L. Sensenich, and H. B. Mulholland. Dr. Walter B. Martin attended the sessions when not in meetings of the Board of Trustees.

COUNCIL COMMITTEE REPORTS

The Council heard and discussed progress reports from Dr. Hess, representing the Committee on Extension of Hospitals and Other Facilities; from Dr. Mulholland regarding the activities of the Committee on Maternal and Child Care; from Dr. McGoldrick concerning the work of the Committee on Medical Care of Industrial Workers; from Dr. McCarthy concerning the activities of the Committee on Prepayment Hospital and Medical Service, and from Dr. Hamer regarding the activities of the Committee on Relations with Lay-Sponsored Voluntary Health Plans. Dr. Mulholland also reported on the progress being made by the Committee on Indigent Care. Dr. McVay reported on the scheduled meeting of the Committee on Medical Care of Veterans.

SUPPLEMENTARY REPORT

The Council's Supplementary Report was discussed section by section and approved for submission to the House of Delegates. It was voted to defer policy recommendations concerning temporary cash sickness benefits legislation until after the Council had discussed this matter with representatives of interested state medical associations. Recommendations for annotating the Twenty Principles for Lay-Sponsored Health Plans were deferred until further information on the subject could be obtained.

APPLICATION FOR SEAL OF ACCEPTANCE

Applications for the Seal of Acceptance from the following prepayment plans were approved by the Council:

Southeast Idaho Medical Bureau, Inc., Pocatello

Kansas Physicians Service, Topeka

Rhode Island Medical Society Physicians Service, Providence

The Council discussed at length an application for approval as a "lay-sponsored voluntary health plan" from Group Health Association, Inc., submitted to the Council through and with the approval of the Medical Society of the District of Columbia. The Council staff was authorized to study the material and prepare a resume for the Council members and for the members of the Committee on Relations with Lay-Sponsored Voluntary Health Plans.

FUTURE APPLICATIONS FOR SEAL OF ACCEPTANCE

The Council voted that all future applications for the Seal of Acceptance should be screened by the Council's Committee on Prepayment Hospital and Medical Service and that this Committee should make its recommendations to the Council.

NATIONAL HEALTH INVENTORY

A program for developing a National Health Inventory Day or Week was discussed by the Council. No action was taken.

PREPAYMENT EXHIBIT

Approval was given for displaying the Council's prepayment exhibit at the annual meeting of the Montana State Medical Association, July 9-12; the annual meeting of the American Public Health Association, St. Louis, October 30 to November 3, and at the Indiana State Medical Association meeting, French Lick, September 25-27.

HEALTH COUNCIL CONFERENCE

Final approval was given to plans for a Conference on Health Councils to be sponsored jointly by the Council on Medical Service and the Michigan State Medical Society and to be held in Detroit early in October.

TWELVE POINT PROGRAM EXHIBIT

The Council staff was authorized to revise and bring up to date the present exhibit on the Twelve Point Program of the American Medical Association.

MISCELLANEOUS

The Council discussed and answered a wire from the Texas Health Council.

Dr. J. L. Fretz, of Seattle appeared before the Council to discuss the Medical Bureau development in that state.

Mr. W. H. Tibbals and Mr. Allan Tibbals of Salt Lake City appeared before the Council to present suggestions regarding the Regional Conferences on voluntary health insurance.

Reports of the Council on Medical Service

HEALTH COUNCIL LOAN KIT

The Council on Medical Service has recently completed a loan kit of material designed to help medical societies interested in the development of community health councils. The material is bound together in a single notebook and is divided into three parts. Part 1 includes material from 10 health councils showing their purposes, organizational set-up and functions. Part 2 includes samples of constitutions and by-laws from four councils. Part 3 develops possible activities for community health councils with actual examples from six councils now in operation.

Interest in the development of community health councils has been evidenced by many county medical societies. To date the Council has a list of 540 local health councils as active in 44 states and Hawaii. This new loan kit, together with the brochure, "The Community Health Council," is available on request.

GRIEVANCE COMMITTEES

The latest information from the Council's study of state medical association grievance committees shows that 32 states have some provision for handling complaints from the public. Fifteen states and the District of Columbia actually have a grievance committee; in 16 states this function is handled by a committee of some other name, and in three states it comes within the jurisdiction of the state council. In addition, nine state medical associations are in the process of organizing a committee to receive complaints from the public.

INDIGENT MEDICAL CARE

The Council's study of state and local indigent medical care programs to date indicates that only four states have what might be called a statewide program. Seven states have a definite statewide pattern of locally administered programs. In 32 states, indigent medical care seems to be left entirely to the communities.

PREPAY BOOKLET

The 1950 revision of "Voluntary Prepayment Medical Care Plans" is now available for distribution and has already been sent to those on the Council's mailing list. This is the fourth annual revision of the brochure, which was developed by the Council in 1946.

Eighty plans in the United States and 11 Canadian plans are described. The descriptions include types of organization, benefits, rates, enrolment and enrolment regulations. It is designed as a ready reference for those who are interested in the programs in operation.

GOVERNMENT SERVICES

Secretary of Defense

The following memorandum from Secretary of Defense Louis Johnson is reproduced for the information of the readers of THE JOURNAL.

Sept. 7, 1950.

Memorandum for the Secretary of the Army
Secretary of the Navy
Secretary of the Air Force

Subject:

Priorities to be observed in calling medical and dental reserve officers to active duty.

By direction of the President, the military departments will strictly observe the following order of priorities in calling to active duty medical and dental reserve officers who are not members of organized reserve units:

First Priority:

Medical and dental reserve officers who were V-12 or ASTP participants, and who have had no prior military service as commissioned medical or dental officers. It is desired that substantially all this group of officers be called before calls are made to the individuals in the second priority.

Second Priority:

Medical and dental reserve officers who were V-12 or ASTP participants, and who have had prior military service. These individuals will be classified by numbers of months of previous active duty, and will be called in inverse order of the number of months of previous active duty they have to their credit. It is desired that substantially all of this group of officers be called before calls are made to the individuals in the third priority.

Third Priority:

Other reserve officers.

Exceptions:

Exceptions may be made to the above priorities in the case of medical reserve officers who have not yet completed twelve full months of medical internship. These individuals, if actively pursuing a medical internship, will be granted a delay in call-up until they have completed a total of twelve full months.

Additionally, in special cases, where a military department can show a military need for the services of a particular individual or group of individuals with special qualifications whose prior service might otherwise tend to warrant their delay in call-up under the policy enunciated above, exceptions may be made so as to authorize their recall to duty, but then only after obtaining the approval of the Director of Medical Services.

Attention is invited to the memorandum of July 20, 1950 addressed to the Secretaries of the military departments by which the military services were authorized to make calls into the Federal service of certain organized units and of individual members of the Reserve. The second paragraph of that memorandum indicated that advance notice to me of the proposed issuance of orders of categories of specialists in the Reserve was required. In keeping with that directive, I desire specific notification of all plans with reference to future calls to be made for all medical and dental officers, and I wish to receive them sufficiently in advance of the proposed publication of orders so that they can be reviewed in my office.

In addition, to the extent that medical and dental reserve officers who are not members of organized reserve units have heretofore been ordered to duty but have not yet reported for duty, in a priority order other than the one set out above, I want the Secretary of each of the military departments to review its procedures in issuing such calls, in order to eliminate inequities to the maximum possible extent.

The Director of Medical Services will request information from the military departments which will permit me to be kept fully informed monthly of the status of all medical and dental personnel called to active duty.

Public Health Service

Two New Institutes

Two new institutes will be added to the National Institutes of Health of the Public Health Service under Public Law 692 recently signed by the President. The law directs the Surgeon General to establish an institute on "arthritis, rheumatism and metabolic diseases" and an institute on "neurological diseases and blindness." Each of these institutes will have a National Advisory Council. The Surgeon General is authorized, also at his discretion and as the need may arise, to establish additional institutes in other fields of research or to expand an existing institute to accomplish the same purpose. The Surgeon General also is given authority to establish Advisory Councils for disease categories without establishing corresponding institutes. The law also provides that by Oct. 1, 1950 all research advisory councils to the Public Health Service shall have a uniform membership structure. After that date, the five advisory councils previously established and the two new councils will be composed of three ex officio members and 12 appointed members. The ex officio members will be the Surgeon General of the Public Health Service, who acts as chairman; the Chief Medical Officer of the Veterans Administration or his representative, and a medical officer designated by the Secretary of Defense. The other 12 members will be appointed by the Surgeon General with the approval of the Federal Security Administrator, and six must be professional experts in the field. Other provisions of the law are extension of present authority to make grants for traineeships, fellowships and for the construction of research facilities; removal of the ceiling on appropriations authorized for the National Institute of Dental Research, and authorization to hire up to 30 scientific and professional employees with annual salaries from $10,000 to $15,000.

Rolla Dyer Retires

Assistant Surgeon General Rolla E. Dyer, director of the National Institutes of Health, will retire on October 1, after serving 34 years in the Public Health Service. Emory University in Atlanta, Ga., announced simultaneously that Dr. Dyer has accepted appointment as director of research at the Robert Winship Clinic of the University Medical School. Surgeon General Scheele pointed out that Dr. Dyer has earned a worldwide reputation for research on infectious diseases, particularly those caused by viruses and the rickettsial organisms. He was a member of the research team which first proved that Rocky Mountain spotted fever is widespread in many tick-infested areas east of the Rocky Mountains. He discovered that a newly recognized disease in this country was identical with Australian Q fever. In his extensive work on endemic typhus fever, it was discovered that the disease in this country is transmitted from rats to man by fleas. Dr. Dyer has received many honors, including the Lasker Award, the Carles J. Finlay medal of Cuba, the U. S. of American Typhus Commission medal and the War Department Certificate of Merit. In revealing his appointment to the Emory University faculty, the medical dean said that Dr. Dyer would occupy a position of universitywide importance in the correlation and coordination of research projects.

MEDICAL NEWS

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

COLORADO

State Meeting at Colorado Springs.—The Colorado State Medical Association will hold its annual meeting September 21-23 at the Broadmoor Hotel in Colorado Springs under the presidency of Dr. Fred A. Humphrey, Fort Collins. Visiting speakers include:

Sterling Bunnell, San Francisco, Practical Hand Problems.
Howard B. Burchell, Rochester, Minn., Recognition and Interpretation of Cyanosis.
O. Carl Risch, New York, Lesions of the External Ear.
Jean V. Cooke, St. Louis, Changing Mortality of the Common Contagious Diseases and Its Relation to Therapy and Immunization.
Ernest B. Howard, Chicago, Assistant Secretary, The American Medical Association, The American Medical Association and the War.

Roundtable luncheons will be held and scientific and technical exhibits will be shown. The annual banquet will take place Friday evening at 7 o'clock. Dr. Ralph J. Gampell, San Francisco, will be the speaker. The Woman's Auxiliary will meet in conjunction with the Association. An ACTH and Cortisone Seminary will be given at the Broadmoor Hotel immediately following the state meeting by the Department of Graduate and Postgraduate Education of the University of Colorado. There will be no admission fee.

Appoint Assistant Dean and Department Heads.—The University of Colorado School of Medicine, Denver, has announced the appointment of Dr. Archibald R. Buchanan as assistant dean, Dr. Raymond R. Lanier as professor and head of the department of radiology, Cosmo G. Mackenzie, Sc.D., as professor and head of the department of biochemistry and Dr. Cotter Hirschberg to the position of director of the Mental Hygiene Clinic. Dr. Buchanan has been professor in the department of anatomy since 1946. Before he came to the university in 1939 he had taught at the State University of Iowa in Iowa City, Northwestern University in Chicago and the University of Mississippi Schools of Medicine, University.

Dr. Lanier comes from the University of Chicago Clinics, where he took his internship and residency. He also has a Ph.D. degree in anatomy. Dr. Mackenzie was formerly with the department of biochemistry at Cornell University Medical College, New York. During World War II he served with the U. S. Army Air Force doing research and teaching in high altitude aviation. He has also done research in nutrition and metabolism.

Dr. Hirschberg has been professor of psychiatry in the university, with which he has been associated since 1941 except for service in the U. S. Navy Medical Corps. He is also an attending psychiatrist at the Veterans Administration Hospital, Fort Logan, and Fitzsimons General Hospital; he is a consultant to the family Welfare Service in Denver and to the Division of Child Welfare of the state department of welfare.

DELAWARE

State Meeting in Dover.—The annual meeting of the Medical Society of Delaware will be held at the People's Church Community Hall in Dover October 2-4. Visiting speakers, all of Philadelphia, will be:

David A. Cooper, Antibiotic Therapy.
Joseph F. Hughes, Treatment of Anxiety States.
Joseph B. Vander Veer, Anticoagulant Therapy in Acute Myocardial Infarction, Venous Thrombosis and Pulmonary Embolism.
Joseph C. Yaskin, Neuropsychiatric Emergencies.
L. Kraeer Ferguson, Surgical Treatment of Ulcerative Colitis.
Rufus S. Reeves, Tuberculosis in Small Communities.
William G. Leaman Jr., Rehabilitation After Acute Infarction.
Edward L. Bortz, Biology of Aging.
Alvin W. Howland, Present Concept of Glaucoma.

The annual banquet will be at the Maple Dale Country Club Tuesday evening at 7:30. The Woman's Auxiliary will meet in conjunction with the state society.

IDAHO

New Hospital in Blackfoot.—Bingham Memorial Hospital, a 52 bed structure built with federal aid at a cost of about $600,000, was dedicated August 19 in Blackfoot. It is planned so that it can be nearly doubled in size if necessary.

State Meeting at Sun Valley.—The Idaho State Medical Association held its annual meeting in Sun Valley September 5-8 under the presidency of Dr. Walter R. West, Idaho Falls. Guest speakers included:

Robert R. Kierland, Rochester, Minn., Cutaneous Manifestations of Systemic Disease.
Raymond W. McNealy, Chicago, Parotid Gland Tumors.
Kenneth C. Swan, Portland, Ore., Tumors of the Eye.
John S. Lundy, Rochester, Minn., Use of Anesthesia in General Practice.
Charles E. McLennan, San Francisco, Diagnosis and Management of Gynecologic Bleeding.
Robert H. Williams, Seattle, Pyelonephritis.
John W. Cline, San Francisco, The Future of the Medical Profession.

Section papers were given in urology, internal medicine, traumatic orthopedic surgery, obstetrics and gynecology and general surgery. The speaker at the annual banquet Thursday evening was Royal L. Garff, Ph.D., professor of speech, University of Utah, Salt Lake City.

INDIANA

Hospital News.—The $900,000 Rush Memorial Hospital at Rushville, under construction 15 months, was dedicated July 7 and opened for patients July 17. It provides 51 beds, four children's beds and 16 bassinets.

Rural Health Program.—The Indiana State Medical Association presented a panel discussion on "Health Problems in the Rural Areas" August 14 at the annual school and community health workshop at Indiana University, Bloomington. Dr. Franklin S. Crockett of Lafayette, chairman of the Committee on Rural Health of the American Medical Association, was moderator. Among the participants were Dr. Donald A. Dukelow, Bureau of Health Education, American Medical Association, Chicago, and Mr. Aubrey D. Gates of Little Rock, Ark., field director of the American Medical Association's Committee on Rural Health.

KANSAS

Battenfeld Memorial Auditorium.—The University of Kansas School of Medicine has received a gift of $75,000 from Mrs. J. R. Battenfeld, Kansas City, Mo., to be used for the construction of an auditorium at the medical center to be known as the J. R. Battenfeld Jr. Auditorium in memory of a son, Lieut. Jesse Raymond Battenfeld Jr., who was killed in 1945 in a military plane accident.

University Promotions.—The following men received promotions at the University of Kansas School of Medicine, Lawrence-Kansas City. Drs. William H. Algie, Robert E. Bolinger and Harry L. Douglas were promoted to assistant professors of medicine and Drs. Max S. Allen, Lee H. Leger and Sloan J. Wilson to associate professors of medicine. Dr. Mahlon H. Delp has been made a professor of medicine. Dr. Leroy Goodman has been appointed an assistant professor of obstetrics and gynecology; Dr. Donald N. Medearis, associate professor in pediatrics; Dwight J. Mulford, Ph.D., associate professor of biochemistry, and Dr. David W. Robinson, an associate professor of surgery and oncology.

MAINE

Pediatric Institute.—The second annual Pediatric Institute for the General Practitioner will be held September 28 at the Central Maine General Hospital in Lewiston. Morning and afternoon sessions will include a discussion of kidney diseases in childhood, recognition and treatment of the common psychiatric disorders of childhood and care of the newborn infant.

MASSACHUSETTS

Personal.—Dr. Timothy Leary, professor emeritus of pathology since 1929 at Tufts College Medical School, Boston, and for 42 years a medical examiner in Suffolk County, has retired.

State Medical Society Home.—The Massachusetts Medical Society has acquired by purchase the building at 22 Fenway, adjacent to the Boston Medical Library. After suitable alterations the society will make its home there with adequate business offices, committee rooms, facilities for the auxiliary and a hall for small meetings.

MISSOURI

Establish Psychosomatic Medicine Division.—Washington University School of Medicine St. Louis, established a division of psychosomatic medicine July 1, under the direction of Dr. George Saslow, associate professor of psychiatry. The new unit will be supported by an educational grant of $165,000 from the Commonwealth Fund, New York, to extend over a five year period. The departments of internal medicine, psychiatry, psychology and social work will furnish the personnel. The staff will be made up of three physicians, a cultural anthropologist, a soical worker and a clinical psychologist. The division will award several fellowships to interested doctors.

NEW JERSEY

Personal.—Dr. Hyman I. Goldstein, Camden, has been elected a foreign corresponding member of the National French Gastroenterological Society at Paris, France, and an honorary member of the Belgian Gastroenterological Society at Brussels, Belgium.

Isotope Center Planned.—Plans to establish a statewide system providing radioactive isotopes for diagnosis and treatment of certain cancer patients have recently been made by the New Jersey Division of the American Cancer Society and the Medical Society of New Jersey. Central point of the system will be Newark Beth Israel Hospital, where an isotope center is to be established with the approval of the U. S. Atomic Energy Commission. The cancer society has appropriated $2,500 of an estimated $9,000 cost involved in laboratory construction and equipment. This fall patients will be able to obtain the atomic medications now being used in the treatment of thyroid cancer and certain toxic thyroid diseases. In the future, additional subcenters will be financed by the society in various parts of the state. These centers will administer radioactive phosphorus obtained from the central source in Newark, but all patients requiring radioactive iodine treatment must be sent to Beth Israel Hospital by regulation of the AEC. This is said to be the first instance in the United States of a statewide cooperative plan between the medical profession and the American Cancer Society, designed to make such facilities available to everyone in the state.

NEW YORK

Seminars on Rheumatic Fever.—St. Francis Sanatorium for Cardiac Children, Roslyn, Long Island, is presenting a course of seminars on the Nature and Treatment of Rheumatic Fever on the second Tuesday of each month Oct. 10, 1950 to May 8, 1951. Meetings will be held in the auditorium of the sanatorium at 10 a. m. The subjects to be discussed each month are as follows:

October 10, Nature of Rheumatic Fever.
November 14, Experimental Rheumatic-Like Disease.
December 12, Present Concepts Regarding the Mechanism of Heart Failure.
January 9, Treatment of Rheumatic Fever with Cortisone and ACTH.
February 13, Oxygen Therapy in Heart Disease.
March 13, Salt Metabolism and Cardiovascular Disease.
April 10, Treatment of Congestive Failure in Rheumatic Heart Disease.
May 8, Methods for Measuring Cardiodynamics.

The participating faculty members include Drs. Leo M. Taran of the sanatorium, George E. Murphy, Rockefeller Institute for Medical Research, New York; William Dock, Long Island College of Medicine, Brooklyn; Currier McEwen, dean, New York University-Bellevue Medical Center; Alvan L. Barach, Alexander B. Gutman and Andre Cournand, all of Columbia University College of Physicians and Surgeons, New York, and Harry Gold, Cornell University Medical College, New York. Information may be obtained from Reverend Mother Superior, F.M.M., St. Francis Sanatorium for Cardiac Children, Roslyn, Long Island.

New York City

Personal.—Dr. Frederick S. Reiss, associate clinical professor of dermatology and syphilology, New York University-Bellevue Medical Center, has been invited to be a guest speaker at the inauguration meeting of the Marseille Branch of the French Society of Dermatology and Syphilology, to be held in Marseille October 13-15.

Named Associate Dean.—Dr. James E. McCormack has been appointed associate dean of the Post-Graduate Medical School of the New York University-Bellevue Medical Center. Dr. McCormack has served with the Department of Defense in Washington, D. C., as executive director of the Committee on Medical Sciences of the Research and Development Board. Earlier he was assistant dean of the New York University College of Medicine for two years.

Dr. Krida Retires from Teaching.—After 20 years of teaching orthopedic surgery, Dr. Arthur Krida has been appointed professor emeritus, New York University Post-Graduate Medical School. He became associated with the Medical Center in 1930, when he was appointed chairman of the department of orthopedic surgery, New York University College of Medicine. He served in that capacity for 19 years. On his retirement, effective with the beginning of this academic year, Dr. Krida will continue all activities other than those connected with his former teaching post.

NORTH CAROLINA

Faculty Appointment.—Dr. Charles R. Stephen, who has been practicing anesthesiology in Montreal, Canada, has recently been appointed associate professor of anesthesiology at Duke University School of Medicine, Durham. He will also be in charge of the Division of Anesthesiology at Duke Hospital. Dr. Stephen, a graduate of McGill University Faculty of Medicine, Montreal (1940), is a certified anesthesiologist.

Physicians Seek Postgraduate Study.—The Burke County Medical Society at its yearly meeting in Morganton voted its approval of a postgraduate course plan. Approximately 60 doctors would like to meet weekly for a period of 12 weeks. The Burke County Medical Society plans to ask the extension department of the University of North Carolina, Chapel Hill, for consideration of a proposal to conduct postgraduate courses in the area.

PENNSYLVANIA

Hospital News.—The new Chambersburg Hospital, constructed at a cost of $2,000,000, was formally dedicated July 26. Public subscriptions in excess of $1,300,000 by residents of the area and a federal grant of over $650,000 made the new building possible. It contains accommodations for 163 adult and child patients and 36 infants.

Physicians Appointed to Railroad Staffs.—Dr. Albert J. Cross of Philadelphia has been named to the newly created position of company examiner for the Lackawana Railroad. Dr. John S. Niles Jr., of Sayre, has been named associate chief surgeon for the Lehigh Valley Railroad. Dr. George W. Hawk, associate chief surgeon for the Lehigh Valley Railroad since 1923, has been appointed chief surgeon, succeeding Dr. Donald Guthrie, Wilkes-Barre, who has retired, having been surgeon for the railroad since 1910.

Philadelphia

University Appointment.—Dr. Chris J. D. Zarafonetis, Ann Arbor, Mich., has been appointed associate professor of internal medicine in charge of the department of hematology at the Temple University School of Medicine and Hospital.

TEXAS

New Laboratory Building.—Ground has been broken for the new $1,500,000 laboratory building for the University of Texas School of Medicine, Galveston. The building will be a block long and five stories high and will accommodate a new library and reading room, the department of the history of medicine and laboratories for biochemistry and nutrition, physiology, bacteriology and parasitology and pharmacology. The building is expected to be completed in the spring of 1952.

Postgraduate Conferences.—The Dallas Southern Clinical Society with the cooperation of specialty groups and the Southwestern Medical School of the University of Texas will present a series of postgraduate conferences for the fall and winter months. Each conference will cover its subject intensively. A specialist will be honor guest at each conference. The first course in gastroenterology was held September 11-13. The course in general surgery is scheduled for October 9-11 with Dr. Gilbert O. Dean, head of the department of surgery, University of Arkansas School of Medicine, Little Rock, as the honor guest. On November 13-16 the subject will be cardiology and the visiting speaker Dr. C. Sidney Burwell, research professor of clinical medicine, Harvard Medical School, Boston.

WISCONSIN

Rural Health Conference.—The rural health conference, sponsored by the State Medical Society of Wisconsin and 55 farm, health, civic and governmental organizations, will meet at the North Baptist Assembly Camp, Green Lake, September 22-23. Most of the meeting will be devoted to discussions of local problems of the supply of physicians, availability of hospitals, meeting health care costs through voluntary prepaid plans and organizing county health councils and city-county health departments. One of the featured speakers will be Dr. Charles L. Dunham, Atomic Energy Commission, Washington,

D. C., who will address the evening session on "The Farmer and the Atom." John O. Christianson, Sc.D., superintendent, School of Agriculture, University of Minnesota, St. Paul, will speak at the luncheon Saturday on "Rediscovering America."

Annual State Meeting in Milwaukee.—The annual meeting of the State Medical Society of Wisconsin will be held October 2-4 at the Milwaukee Auditorium under the presidency of Dr. J. William Truit. Guest speakers at the general sessions include:

Hugh McCulloch, Chicago, Wisconsin Heart Association Lecture, Recent Advances in Rheumatic Fever.
A. B. Baker, Minneapolis, Theresa Rogers Memorial Lecture, Multiple Sclerosis.
Stuart C. Cullen, Iowa City, Advances in the Field of Anesthesiology.
Francis L. Lederer, Chicago, Use of Antibiotics in Otolaryngology.
Wheelan D. Sutliff, Memphis, Tenn., Acute Aseptic Meningitis.
Daniel C. Darrow, New Haven, Conn., Fluid Therapy with Special Reference to the Role of Potassium.
Michael J. Jordan, New York, Early Diagnosis of Uterine Cancer and Its Management.
Richard B. Cattell, Boston, Surgical Management of Thyroid Diseases.
Yale Kneeland Jr., New York, Advances in Treatment of Respiratory Diseases.
Joseph A. Johnston, Detroit, Special Problems of the Adolescent Child.
Leo Rigler, Minneapolis, Limitations and Possibilities of Roentgen Diagnosis.
J. Barrett Brown, St. Louis, Management of Tumors of the Face, Mouth and Jaws.

The society has added to this year's program daily teaching demonstrations from 9:00 to 10:15 a. m. As a supplement to the demonstrations the staffs of Milwaukee Children's Hospital, Milwaukee County Hospital and Veterans Administration Hospital at Wood will present conferences simultaneously on Monday. At the annual dinner Tuesday evening Mr. Cecil Palmer, British publisher and lecturer, will speak on "State Medicine—Promise and Fulfilment." Several state societies will meet before and during the session. Scientific and technical exhibits will be in the auditorium.

GENERAL

North Texas-Southern Oklahoma Conference.—The North Texas-Southern Oklahoma Fall Clinical Conference will be held at the Wichita Falls Country Club September 20. Visiting speakers include Chester S. Keefer, Boston, "Antibiotics in Common Use Today," and Edward A. Schumann, Philadelphia, "Leaves from an Obstetrician's Notebook." Question and answer periods will be held at the conclusion of morning and afternoon sessions.

Section Meeting in Tulsa.—The Oklahoma-Arkansas Regional Meeting of the American College of Physicians will be held at the Mayo Hotel in Tulsa September 30. Physicians delivering papers by invitation include:

Paul L. Day, Ph.D., Little Rock, Ark., Relation of Vitamins to Disease.
Col. Ralph M. Patterson, Hot Springs, Ark., Steroids Other than ACTH and Cortisone in the Treatment of Rheumatoid Arthritis.
Henry A. Brocksmith, Muskogee, Okla., Pulmonary Silicosis.
Alfred Kahn Jr., Little Rock, Ark., Modern Concepts of Hepatitis in Cirrhosis.

Dr. Winternitz Honored.—The July issue of the *Yale Journal of Biology and Medicine* is a special number in honor of Dr. Milton C. Winternitz, dean of the school of medicine for 15 years, who retired at the end of the June session. The scientific articles were prepared by his associates, colleagues and former students. Besides tributes to Dr. Winternitz prepared by Charles Seymour, LL.D., president of Yale University, and Mr. James R. Angell, former president, there are 31 scientific articles.

Dr. Faxon to Receive Merit Award.—Dr. Nathaniel W. Faxon of Boston will receive the American Hospital Association's Award of Merit at the annual banquet, September 21, during the Atlantic City convention. The award recognizes outstanding leadership and service in the realm of administration. Dr. Faxon has been a leader in many health organizations and was president of the American Hospital Association in 1934. Until his retirement in 1949, he was director of Massachusetts General Hospital and the Massachusetts Eye and Ear Infirmary, Boston.

Annual Meeting on Cerebral Palsy.—The American Academy of Cerebral Palsy will hold its annual meeting October 20-21 at the Palmer House, Chicago, under the presidency of Dr. Earl R. Carlson, East Hampton, Long Island, N. Y. The Friday afternoon meeting is open to physicians interested in cerebral palsy. The program beginning at 2 p. m. includes:

Earl R. Carlson, Cerebral Palsy Problems.
Eric Denhoff, Providence, R. I., Pediatric Approach to the Cerebral Palsy Problem.
Frederic A. Gibbs and Meyer A. Perlstein, Chicago, Convulsive Disorders in Children with Cerebral Palsy.
Harold Westlake, Ph.D., Chicago, Development of Speech in Pre-School-Age Children.
William Hardy, Ph.D., Testing Hearing of Cerebral Palsied Children.

Markle Foundation to Continue Grants.—The John and Mary R. Markle Foundation, 14 Wall Street, New York, announces that it will continue for a fourth year its program of five year grants for Scholars in Medical Science to help young scientists interested in teaching and research to become established in academic medicine. A total of 47 scholars on the staffs of 35 medical schools in the United States and Canada are now being aided by these grants; 20 were chosen in 1950. The number to be named in 1951 has not been determined. Each medical school is invited to nominate one candidate. Grants of $25,000 payable at the rate of $5,000 annually, will be made to the schools over a five year period for the support of each scholar selected. Nominations should be made to the foundation on or before December 1.

Pan American Sanitary Conference.—The thirteenth meeting of this conference will be held in the University of Santo Domingo in Ciudad Trujillo, capital of the Dominican Republic, October 2-10. The Pan American Sanitary Conference meets at four year intervals to establish the general orientation of the organization for the succeeding four years. It is expected that the delegates of all the 21 American Republics and Canada, as well as of Denmark, France, the Netherlands, the United Kingdom and their dependent territories in the Western Hemisphere will participate in the conference. In addition, public and private international organizations concerned with the promotion of health and welfare will be represented. This is the bureau's first meeting since it became a regional agency of the World Health Organization.

Meeting of Insurance Medical Directors.—The annual meeting of the Association of Life Insurance Medical Directors will be held October 19-20 at the Hotel Statler in New York. The program includes:

Edward H. Rynearson, Rochester, Minn., Obesity.
William Dock, Brooklyn, Prophylaxis and Therapeutic Outlook of Arteriosclerosis.
Frederick A. Waldron and W. Pepper Constable, New York, Myocardial Infarction—a Mortality Study.
Kenneth F. Brandon and Mr. M. H. Weill, Hartford, Conn., The Electrocardiogram in Insurance Selection.
Hugh B. Campbell, Hartford, Conn., Nontuberculous Pulmonary Diseases.
H. Clive McAlister, Fort Wayne, Ind., Underwriting the Highly Impaired Risk.
Roy W. Scott, Cleveland, Prognosis of Coronary Artery Disease.
William Bolt and Murray F. Bell, New York, Prognostic Import of the Large Q3 Deflection—a Mortality Study.
Richard S. Gubner, New York, Diagnosis of Arteriosclerosis.

Mental Hospital Institute.—The second Mental Hospital Institute, sponsored by the American Psychiatric Association, will be held at St. Louis University Auditorium, St. Louis, October 16-19. Representatives from mental hospitals, general hospitals with psychiatric departments, state and provincial administrative offices and other organizations concerned with the hospitalized mentally ill in the United States and Canada are eligible to attend. Equivalent to a postgraduate seminar, the four day workshop will cover administration and business management, community and public relations, clinical practices and problems and inservice education and training. Faculty co-chairmen are Drs. J. Freemont Bateman, Columbus, Ohio; Addison M. Duval, Washington, D. C.; Frank F. Tallman, Columbus, Ohio; Karl M. Bowman, San Francisco; George E. Reed, Montreal, Quebec; Newton J. T. Bigelow, Marcy, N. Y., and Harvey J. Tompkins, Washington, D. C. The attendance fee is $50. Advance registration should be made with the Director, A.P.A. Mental Hospital Service, 1624 Eye Street N. W., Washington 6, D. C.

New WHO Deputy Director-General.—The World Health Organization has announced the appointment of Dr. Pierre Dorolle, formerly director of health services in Indo-China, as deputy director-general of WHO. Dr. Dorolle, born in 1899 at Wassy, France, studied in Paris and Bordeaux, specialized in tropical medicine and started serving in Indochina in 1925. His experience in control of plague, cholera, typhus, diphtheria and smallpox epidemics led to his appointment in 1937 to the League of Nations Epidemics Committee in China, where he served for three years. Recalled to Indochina in 1940, Dr. Dorolle reorganized the health services that had been disrupted by air bombings and blockade. He was interned by the Japanese in 1945. After liberation he reorganized Indochina's medical services and arranged for their transfer to the new governments of Viet Nam, Cambodia and Laos. He has served on missions to India, Burma and Java; at postwar nutrition conferences at Singapore, Baguio, Bangkok and Rangoon and at the Third World Health Assembly.

Maxillofacial Surgeons Meeting.—The annual meeting of the American Society of Maxillofacial Surgeons will be held September 24-26 in New York under the presidency of Dr. Maurice J. Hickey of that city. The sessions will begin on

Monday at the Columbia-Presbyterian Medical Center. Those presenting papers by invitation include:

William P. Rogers Jr., New York, Experimental Studies on the Temporomandibular Joint.

Harry H. Shapiro, Boston, Anatomic Considerations of the Temporomandibular Joint.

Samuel Salinger, Chicago, Development and Physiology of the Nasal Septum in Relation to the Maxilla.

John G. Converse, Boston, Intraoral Transplantation of Bone in Correction of Facial Deformities.

Clinics will be held Monday afternoon at the center and Tuesday morning at Memorial Hospital. Papers will be presented at Lenox Hill Hospital Tuesday morning and at Manhattan Eye, Ear and Throat Hospital Wednesday morning, when Dr. Harold S. Vaughan, New York, will lead a discussion of the "Management of Bilateral Clefts of the Lip and Premaxilla."

Prevalence of Poliomyelitis.—Reports of cases of poliomyelitis for the periods indicated have been received from the National Office of Vital Statistics, U. S. Public Health Service.

	Week Ended		Total*		5-Year Median, 1945-1949
	Sept. 2, 1950	Sept. 3, 1949	1950	1949	
United States Total	1,627	3,198	12,356	22,809	11,967
Northeastern States:					
Maine	3	37	25	261	19
New Hampshire	..	24	5	113	18
Vermont	1	15	12	55	13
Massachusetts	23	194	133	931	104
Rhode Island	5	17	17	67	18
Connecticut	32	56	149	289	61
Middle Atlantic States:					
New York	286	538	1,945	3,093	565
New Jersey	24	137	291	607	314
Pennsylvania	49	79	377	337	299
East North Central States:					
Ohio	98	171	445	886	304
Indiana	18	61	140	675	129
Illinois	122	282	608	1,788	438
Michigan	116	980	582	1,554	263
Wisconsin	55	101	244	502	190
West North Central States:					
Minnesota	37	108	107	1,040	449
Iowa	95	72	521	630	209
Missouri	16	101	148	907	118
North Dakota	1	52	22	327	65
South Dakota	7	38	53	182	93
Nebraska	16	59	184	282	263
Kansas	24	52	186	421	135
South Atlantic States:					
Delaware	3	4	17	31	31
Maryland	37	13	156	78	47
District of Columbia	15	7	100	47	47
Virginia	48	27	506	180	180
West Virginia	9	23	157	219	29
North Carolina	49	9	369	133	66
South Carolina	17	4	282	56	56
Georgia	14	5	152	106	91
Florida	17	14	159	134	134
East South Central States:					
Kentucky	28	60	321	345	70
Tennessee	23	36	275	333	200
Alabama	5	13	179	146	116
Mississippi	15	6	207	209	85
West South Central States:					
Arkansas	15	44	172	746	93
Louisiana	10	7	206	140	79
Oklahoma	19	50	311	864	227
Texas	102	63	1,730	1,578	698
Mountain States:					
Montana	3	8	29	32	24
Idaho	8	27	36	283	57
Wyoming	..	7	27	68	26
Colorado	7	55	81	326	55
New Mexico	5	16	45	107	47
Arizona	11	11	62	95	71
Utah	..	19	20	94	49
Nevada	..	1	3	11	3
Pacific States:					
Washington	41	50	177	263	117
Oregon	16	9	134	90	50
California	65	89	798	1,029	1,004

* Beginning with the 12th week of each year.

CORRECTION

"Electrophrenic Respiration in Acute Bulbar Poliomyelitis," by S. J. Sarnoff et al. (J. A. M. A. Aug. 19, 1950).—In the table on page 1389 the wording regarding time should be seconds instead of minutes. In conclusion 2 the number of patients should read 8 instead of 9.

Coming Medical Meetings

American Academy of Ophthalmology and Otolaryngology, Palmer House, Chicago, Oct. 8-13. Dr. W. L. Benedict, 100 First Avenue Bldg., Rochester, Minn., Secretary.

American Academy of Pediatrics, Palmer House, Chicago, Oct. 16-19. Dr. Clifford G. Grulee, 636 Church St., Evanston, Ill., Secretary.

American Association of Blood Banks, Stevens Hotel, Chicago, Oct. 12-14. Miss Marjorie Saunders, 3301 Junius, Dallas 1, Texas, Secretary.

American Association of Medical Record Librarians, Somerset Hotel, Boston, Oct. 23-27. Miss Martha M. Bailer, 18 E. Division St., Chicago 10, Executive Secretary.

American Clinical and Climatological Association, Red Lion Inn, Stockbridge, Mass., Oct. 17-19. Dr. James Bordley III, Mary Imogene Bassett Hospital, Cooperstown, N. Y., Secretary.

American College of Surgeons, Boston, Oct. 23-27. Dr. Paul B. Magnuson, 40 E. Erie St., Chicago 11, Secretary.

American Hospital Association, Atlantic City, Sept. 18-22. Mr. George Bugbee, 18 E. Division St., Chicago 10, Executive Director.

American Public Health Association, Hotels Statler and Jefferson, St. Louis, Oct. 30-Nov. 3. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, Executive Secretary.

American Roentgen Ray Society, St. Louis, Sept. 26-29. Dr. Barton R. Young, Germantown Hospital, Philadelphia 44, Secretary.

American Society for the Study of Arteriosclerosis, Hotel Knickerbocker, Chicago, Nov. 5-6. Dr. O. J. Pollak, Quincy City Hospital, Quincy 69, Mass., Secretary.

American Society of Anesthesiologists, Houston, Texas, Nov. 7-10. Dr. J. Earl Remlinger Jr., 188 W. Randolph St., Chicago 1, Secretary.

American Society of Clinical Pathologists, Drake Hotel, Chicago, Oct. 17-21. Dr. Clyde G. Culbertson, 1040 W. Michigan St., Indianapolis 7, Secretary.

American Society of Maxillofacial Surgeons, New York, Sept. 24-27. Dr. Casper M. Epsteen, 25 E. Washington St., Chicago 2, Secretary.

American Society of Tropical Medicine, Savannah, Ga., Nov. 6-9. Dr. Quentin M. Geiman, 25 Shattuck St., Boston 15, Mass., Secretary.

Association of American Medical Colleges, Lake Placid, N. Y., Oct. 22-25. Dr. Dean F. Smiley, 185 N. Wabash Ave., Chicago, Secretary.

Association of Life Insurance Medical Directors of America, New York, Oct. 19-20. Dr. Henry B. Kirkland, P. O. Box 594, Newark 1, N. J., Secretary.

Association of Military Surgeons of the United States, Hotel Statler, New York, Nov. 9-11. Col. James M. Phalen, Armed Forces Institute of Pathology, Washington 25, D. C., Secretary.

Association of State and Territorial Health Officers, Washington, D. C., Oct. 23-27. Dr. Leroy E. Burney, 1098 W. Michigan St., Indianapolis 7, Secretary.

Central Neuropsychiatric Association, Hollenden Hotel, Cleveland, Oct. 13-14. Dr. Lee M. Eaton, 102 Second Ave., S.W., Rochester, Minn., Secretary.

Colorado State Medical Society, Broadmoor Hotel, Colorado Springs, Sept. 20-23. Mr. Harvey T. Sethman, 1612 Tremont Place, Denver 2, Executive Secretary.

Delaware, Medical Society of, Dover, Oct. 2-4. Dr. Andrew H. Gehret, 1007 Park Place, Wilmington, Secretary.

District of Columbia, Medical Society of the, Washington, Oct. 2-4. Mr. Theodore Wiprud, 1718 M Street N.W., Washington 6, Secretary.

Indiana State Medical Association, French Lick, Sept. 25-27. Mr. Ray E. Smith, 23 E. Ohio St., Indianapolis 4, Executive Secretary.

International College of Surgeons, United States Chapter, Cleveland Hotel, Cleveland, Oct. 30-Nov. 3. Dr. Arnold S. Jackson, 1516 Lake Shore Drive, Chicago, Executive Secretary.

Interstate Postgraduate Medical Association of North America, Hotel Stevens, Chicago, Nov. 6-9. Dr. Arthur G. Sullivan, 16 N. Carroll St., Madison, Wis., Managing Director.

Kansas City Southwest Clinical Society, Municipal Auditorium, Kansas City, Mo., Oct. 2-5. Mr. E. Leas Clower, 630 Shukert Bldg., Kansas City 6, Executive Secretary.

Kentucky State Medical Association, Brown Hotel, Louisville, Sept. 26-28. Dr. Bruce Underwood, 620 S. Third St., Louisville 2, Secretary.

Michigan State Medical Society, Book-Cadillac Hotel, Detroit, Sept. 20-22. Dr. L. Fernald Foster, 2020 Olds Tower, Lansing 8, Secretary.

Mississippi Valley Medical Society, Springfield, Ill., Sept. 27-29. Dr. Harold Swanberg, 510 Maine St., Quincy Ill., Secretary.

National Gastroenterological Association, Hotel Statler, New York, Oct. 9-11. Dr. Sigurd W. Johnsen, 1818 Broadway, New York 23, Secretary.

Nevada State Medical Association, Las Vegas, Oct. 5-7. Dr. Wesley W. Hall, 307 West Sixth St., Reno, Secretary.

Oregon State Medical Society, Gearhart, Sept. 27-29. Dr. Werner E. Zeller, Medical-Dental Bldg., Portland 5, Secretary.

Pennsylvania, Medical Society of the State of, Philadelphia, Oct. 15-19. Dr. Walter F. Donaldson, 500 Penn Ave., Pittsburgh 22, Secretary.

Southwestern Medical Association, Hotel Westward Ho, Phoenix, Ariz., Oct. 26-28. Dr. Wickliffe R. Curtis, First National Bank Bldg., El Paso, Texas, Secretary.

Southwestern Surgical Congress, Shirley-Savoy Hotel, Denver, Colo., Sept. 25-27. Dr. C. R. Rountree, 525 N.W. Eleventh St., Oklahoma City, Secretary.

Virginia, Medical Society of, Roanoke, Oct. 8-11. Mr. H. S. Johnson, 1200 East Clay St., Richmond 19, Executive Secretary.

Wisconsin, State Medical Society of, Hotel Schroeder and Milwaukee Auditorium, Milwaukee, Oct. 1-4. Mr. C. H. Crownhart, 704 E. Gorham St., Madison, Secretary.

International Meetings

International Association of Milk and Food Sanitarians, Hotel Dennis, Atlantic City, N. J., Oct. 13-16. Mr. George A. West, Rochester Health Bureau, Rochester 2, N. Y., Secretary.

International Congress on Diseases of the Chest, Carlo Forlanini Institute, Rome, Italy, Sept. 17-22. Prof. A. Omodei Zorini, Carlo Forlanini Institute, Rome, Italy, Chairman.

International Congress of Kenisitherapy, Paris, France, Sept. 21-24. Dr. M. René Morice, 58 bis, rue Francois ler, Paris 8e, France, Secretary.

International Congress of Psychiatry, Palais de la Sorbonne, Paris, France, Sept. 19-27. Dr. Henri Ey, 1 rue Cabanis, Paris 14e, France, General Secretary.

World Medical Association, Hotel Roosevelt, New York City, U. S. A., Oct. 16-20. Dr. Louis H. Bauer, 2 E. 103d St., New York City 29, Secretary-General.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Oral.* Chicago, Oct. 8-11. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Ave., New York 22.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Oral.* Detroit, Oct. 20-22. Sec., Dr. George M. Lewis, 66 East 66th St., New York 21.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Oct. 16. Asst. Sec., Dr. William A. Werrell, 1 West Main Street, Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: Chicago, Oct. 20-21, 1950. Applications no longer accepted. Sec., Dr. W. J. German, 789 Howard Ave., New Haven, Conn.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral, including sub-specialties,* Oct. 26-28. Final date for filing application was August 19. *Oral, including sub-specialties,* Dec. 7-9. Executive Secretary-Treasurer, Dr. William A. Werrell, 1 West Main St., Madison 3.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Part I, Written Examination and Review of Case Histories. Various locations. Feb. 2, 1951. Final date for filing applications is Nov. 5. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6, Pa.

AMERICAN BOARD OF OPHTHALMOLOGY: *Written.* Various Centers, Jan. 5-6, 1951. *Oral.* Chicago, Oct. 2-6; San Francisco, March 11-15; New York, May 31-June 4; Chicago, October 1951. Sec., Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Part II.* Chicago, Jan. 25-26. Final date for filing applications is Aug. 15, 1950. Sec., Dr. Harold A. Sofield, 122 South Michigan Avenue, Chicago 3.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 3-6, Jan. 8-11, 1951. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PATHOLOGY: St. Louis, Oct. 13-14. Sec., Dr. Robert R. Moore, 507 Euclid Ave., St. Louis 10.

AMERICAN BOARD OF PEDIATRICS: *Oral.* Chicago, Oct. 13-15 and Boston, Dec. 1-3. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PLASTIC SURGERY: Houston, Nov. 30, Dec. 1-2. Sec., Dr. Bradford Cannon, 4647 Pershing Ave., St. Louis.

AMERICAN BOARD OF PREVENTIVE MEDICINE AND PUBLIC HEALTH: St. Louis, Oct. 28-29. Sec., Dr. Ernest L. Stebbins, 615 N. Wolfe St., Baltimore.

AMERICAN BOARD OF PROCTOLOGY: Philadelphia, Nov. 11-12, Part II—Anorectal Surgery. Sec.-Gen., Dr. Louis A. Buie, 102-110 Second Ave., S.W., Rochester.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New York, Dec. 18-19. Final date for filing applications was Sept. 1. Sec., Dr. Francis J. Braceland, 102-110 Second Ave., S.W., Rochester.

AMERICAN BOARD OF RADIOLOGY: Chicago, Dec. 5-10. Quota of appointments already filled. Sec., Dr. B. R. Kirklin, Mayo Clinic, Rochester.

AMERICAN BOARD OF SURGERY: *Written.* Various Centers, Oct. 25. *Written.* Various centers, March 1951. Final date for filing applications is Dec. 1, 1950. Sec., Dr. J. Stewart Rodman, 225 South 15th Street, Philadelphia.

AMERICAN BOARD OF THORACIC SURGERY: Part I. Written examination, September 22, various parts of the country. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit 2.

AMERICAN BOARD OF UROLOGY: Chicago, Feb. 10-14, 1951. Final date for filing applications was Sept. 1, 1950. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 21.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Montgomery, June 26-28. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

ARIZONA: October 17-19. Phoenix. Sec., Dr. J. H. Patterson, 316 W. McDowell Road, Phoenix.

ARKANSAS: * Little Rock, Nov. 9-10. Sec., Dr. Joe Verser, Harrisburg. Homeopathic: Nov. Sec., Dr. C. S. Bungart, 105 N. 14th St., Ft. Smith. Eclectic: Nov. 9. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Examination Written.* Sacramento, Oct. 16-19. *Examination, Oral and Clinical for Foreign Medical School Graduates,* San Francisco, Nov. 12. *Reciprocity, Oral Examination,* San Francisco, Nov. 11. Sec., Dr. Frederick N. Scatena, 1020 N Street, Sacramento 14.

COLORADO: * Denver, Jan. 3-5, 1951. Exec. Sec., Mrs. B. M. Hudgens, 831 Republic Bldg., Denver.

CONNECTICUT: * Hartford, Nov. 14-15. Sec., Dr. Creighton Barker, 160 St. Ronan St., New Haven. Homeopathic: Nov. 14-15. Sec., Dr. Donald A. Davis, 38 Elizabeth St., Derby.

DELAWARE: Dover, Jan. 9-11. *Reciprocity.* Jan. 18, 1951. Sec., Dr. J. S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: * Washington, Sept. 18. Sec., Dr. Daniel L. Seckinger, 4130 Municipal Bldg., Washington.

FLORIDA: * Jacksonville, Nov. 26-28. Sec., Dr. Homer Pearson, 701 Dupont Bldg., Miami.

GEORGIA: Atlanta, Oct. 10-11. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta 3.

HAWAII: Honolulu, Jan. 8-11, 1951. Sec., Dr. I. L. Tilden, 881 S. Hotel St., Honolulu.

IDAHO: Boise, Jan. 8, 1951. Sec., Mr. Armand L. Bird, 305 Sun Bldg., Boise.

ILLINOIS: Chicago, Oct. 10-12. Superintendent of Registration, Mr. Charles F. Kervin, Capitol Bldg., Springfield.

INDIANA: Indianapolis, June 1951. Exec. Sec., Miss Ruth V. Kirk, 1138 K. of P. Bldg., Indianapolis 4.

IOWA: *Written.* Des Moines, Dec. 4-6. Acting Director, Division of Examination and Licensure, State Department of Health, 1027 Des Moines St., Des Moines.

KANSAS: Topeka, Dec. 13-14. Sec., Dr. O. W. Davidson, 772 New Brotherhood Bldg., Kansas City.

LOUISIANA: New Orleans, Dec. 8-10. Sec., Dr. R. B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

MAINE: Portland, Nov. 14-15. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: Baltimore, Dec. 12-15. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore 1.

MASSACHUSETTS: Boston, Jan. 23-26, 1951. Sec., Dr. Geo. R. Schadt, 37 State House, Boston.

MINNESOTA:* Minneapolis, Oct. 17-19. Sec., Dr. J. F. Du Bois, 230 Lowry Medical Arts Bldg., St. Paul 2.

MISSISSIPPI: Jackson, December. Asst. Sect., Dr. R. N. Whitfield, Jackson 113.

MISSOURI: October 19-21. Kansas City. Exec. Sec., Mr. John A. Hailey, P. O. Box 4, Jefferson City.

MONTANA: Helena, Oct. 2. Sec., Dr. S. A. Cooney, 7 W. 6th Ave., Helena.

NEBRASKA:* June 1951. Director, Mr. Oscar F. Humble, Room 1009, State Capitol Bldg., Lincoln.

NEVADA: Nov. 6. Carson City. Sec., Dr. George H. Ross, 112 Curry Street, Carson City.

NEW JERSEY: Trenton, Oct. 17-20. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: * Santa Fe, Oct. 9-10. Sec., Dr. Charles J. McGoey, Coronado Building, Santa Fe.

NEW YORK: New York, Buffalo, Albany and Syracuse, Oct. 3-6. Sec., Dr. Jacob L. Lochner, 23 S. Pearl St., Albany.

NORTH CAROLINA: *Reciprocity.* Raleigh, Sept. 25. Sec., Dr. Ivan Procter, 226 Hillsboro St., Raleigh.

NORTH DAKOTA: Grand Forks, Jan. 3-6. Sec., Dr. C. J. Glaspel, Grafton.

OHIO: Columbus, December. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OREGON: * *Examination.* Portland, January 1951. *Reciprocity.* Portland, Oct. 13. Sec., Mr. Howard I. Bobbit, 608 Failing Bldg., Portland 4.

PENNSYLVANIA: Philadelphia, January 1951. Acting Secretary, Mrs. M. G. Steiner, 351 Education Bldg., Harrisburg.

RHODE ISLAND: * Providence, Oct. 5-6. Chief, Mr. Thomas B. Casey, 355 State Office Bldg., Providence.

SOUTH CAROLINA: Columbia, Nov. 13-15. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA: Jan. 15-16. Sioux Falls, South Dakota. Sec., Dr. C. E. Sherwood, 300 First National Bank Bldg., Sioux Falls.

TENNESSEE: * Memphis, Sept. 27-28. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis 3.

TEXAS:* Fort Worth, November 9-11, 1950. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth.

UTAH: Salt Lake City, July 1951. Dir., Mr. Frank E. Lees, 324 State Capitol Bldg., Salt Lake City 1.

VERMONT: Burlington, February 1951. Sec., Dr. F. J. Lawliss, Richford.

VIRGINIA: Richmond, Nov. 30, Dec. 1-2. Sec., Dr. K. D. Graves, 631 First St., S.W., Roanoke.

WASHINGTON: * Seattle, January 1951. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

WEST VIRGINIA: Charleston, Oct. 2-4. Sec., Dr. N. H. Dyer, State Capitol, Charleston 6.

WISCONSIN: * River Falls, Jan. 9-11, 1951. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

WYOMING: Cheyenne, Oct. 2. Sec., Dr. Franklin D. Yoder, Capitol Bldg., Cheyenne.

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* Basic Science Certificate required

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARIZONA: Tucson, Sept. 19. Sec., Mr. Francis A. Roy, Science Hall, Univ. of Arizona, Tucson.

ARKANSAS: Little Rock, Oct. 3-4. Sec., Mr. L. E. Gebauer, 1002 Donaghey Bldg., Little Rock.

CONNECTICUT: Oct. 14. Executive Sec., M. G. Reynolds, State Board of Healing Arts, 110 Whitney Ave., New Haven 10.

DISTRICT OF COLUMBIA: Washington, Oct. 23-24. Dr. Daniel L. Seckinger, 4130 E. Municipal Bldg., Washington.

FLORIDA: Jacksonville, Nov. 11. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

IOWA: Des Moines, Oct. 10. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MICHIGAN: *Examination.* Ann Arbor, Oct. 13-14. Sec., Miss Eloise LeBeau, 101 North Walnut Street, Lansing 15.

MINNESOTA: Minneapolis, Oct. 3-4. Sec., Dr. Raymond N. Bieter, 105 Millard Hall, University of Minnesota, Minneapolis 14.

NEBRASKA: *Examination.* Omaha, Oct. 3-4. Director, Mr. Oscar F. Humble, Room 1009, State Capitol Building, Lincoln 9.

NEW MEXICO: *Examination.* Santa Fe, Sept. 17. Sec., Mrs. Marguerite K. Cantrell, Box 1522, Santa Fe.

RHODE ISLAND: *Examination.* Providence, Nov. 8. Chief, Division of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Building, Providence.

SOUTH DAKOTA: Vermillion, Dec. 1-2. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

TENNESSEE: Memphis, Sept. 21-22. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

TEXAS: *Examination.* Austin, Oct. 13-14, April 1951. Sec., Brother Raphael Wilson, 306 Nalle Building, Austin.

WASHINGTON: Seattle, January 1951. Sec., Mr. Edward D. Dohm, Department of Licenses, Olympia.

WISCONSIN: *Examination.* Milwaukee, Dec. 2. Sec., Mr. W. H. Barber, Scott and Watson Sts., Ripon.

DEATHS

Wise, Fred ⊕ New York; born in New York in 1881; Columbia University College of Physicians and Surgeons, New York, 1904; served as clinical professor of dermatology and syphilology at New York Post-Graduate Medical School and Hospital, Columbia University; formerly on the faculty of his alma mater; specialist certified by the American Board of Dermatology and Syphilology; past president of the American Dermatological Association; member of the American Academy of Dermatology and Syphilology; chairman of the Section on Dermatology and Syphilology of the American Medical Association, 1925-1926; consultant to the Beth-El Hospital in Brooklyn and Montefiore Hospital for Chronic Diseases; served as chief of Vanderbilt Clinic; associate editor of the *Journal of Cutaneous Diseases* for many years; resigned his editorial position when he took over the editorship of the *Year Book of Dermatology and Syphilology* in 1931, and retired as senior editor in 1943; died in Memorial Hospital July 26, aged 68, of esophageal carcinoma.

Cofield, Robert Barker, Cincinnati; born in Bethel, Ind., Dec. 31, 1877; Medical College of Ohio, Cincinnati, 1903; formerly associate professor of orthopedic surgery at the University of Cincinnati College of Medicine; specialist certified by the American Board of Orthopedic Surgery; member of the American Medical Association, American Orthopaedic Association, Clinical Orthopaedic Society and the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; affiliated with Cincinnati General and Jewish hospitals; consultant to the orthopedic service of Children's Hospital in Cincinnati and Maple Knoll Hospital and Home for the Friendless in Glendale; senior orthopedic surgeon, Christ Hospital, where he was past president of the staff and where he died July 14, aged 72, of cerebral embolism and rheumatic heart disease.

Baker, Ernest Laverne ⊕ Minneapolis; University of Minnesota College of Medicine and Surgery, Minneapolis, 1909; member of the staff of St. Andrew's Hospital; died July 20, aged 70, of coronary disease.

Bramble, Halsey Sandford ⊕ Elmer, N. J.; Jefferson Medical College of Philadelphia, 1905; for many years school physician; died in Shore Memorial Hospital, Somers Point, August 7, aged 70, of uremia.

Charron, Joseph Rosario, Turners Falls, Mass.; Laval University Faculty of Medicine, Quebec, Canada, 1895; member of the American Medical Association; served on the board of health and as town and school physician for many years; affiliated with Farren Memorial Hospital in Montague City, where he served as president of the staff; died July 19, aged 81, of coronary occlusion.

Connell, Arthur Irving, Fall River, Mass.; Harvard Medical School, Boston, 1891; member of the American Medical Association; for many years on the school board; affiliated with Union Hospital, where he died July 18, aged 85, of cerebrovascular accident.

Curtis, Charles Thayer, St. Petersburg, Fla.; New York University Medical College, New York, 1896; died July 2, aged 77, of coronary occlusion.

Damron, Harold Bryan ⊕ Elizabethton, Tenn.; Medical College of Virginia, Richmond, 1932; served during World War II; died July 24, aged 43, of angina pectoris.

Deane, Allen Woodard, Pulaski, Tenn.; University of Nashville Medical Department, 1900; member of the American Medical Association; died in Pulaski Hospital July 28, aged 77, of heart disease.

De Coste, Stephen Hubert ⊕ Brooklyn; University and Bellevue Hospital Medical College, New York, 1906; specialist certified by the American Board of Otolaryngology; served during World War I; past president of the otolaryngology section of Kings County Medical Society; consultant to St. Catherine's, Mary Immaculate and Greenpoint hospitals; died July 30, aged 71, of arteriosclerosis.

Francis, Harry Herbert, Kansas City, Mo.; National University of Arts and Sciences Medical Department, St. Louis, 1916; served during World War I; died in Research Hospital July 25, aged 67, of injuries received in an automobile accident.

⊕ Indicates Fellow of the American Medical Association.

Freeman, Edward Rutledge, Columbus, Ga.; Emory University School of Medicine, Atlanta, 1943; member of the American Medical Association; died suddenly July 22 ,aged 33.

Friddell, Luther L., Birchwood, Tenn.; Medical Department of Grant University, Chattanooga, 1902; died July 20, aged 72, of diabetes mellitus.

Grigsby, Clement E., Coffeyville, Kan.; Ensworth Medical College, St. Joseph, Mo., 1893; member of the American Medical Association; served as physician at the Kansas State Penitentiary at Lansing; affiliated with Coffeyville Memorial Hospital; died May 29, aged 80, of heart disease.

Guggenheim, Lewis C., Kansas City, Mo.; Kansas City Homeopathic Medical College, 1899; member of the American Medical Association; died in St. Joseph Hospital July 22, aged 75, of coronary thrombosis and hypertension.

Hancock, Robert Wesley, Elyria, Ohio; Indiana University School of Medicine, Indianapolis, 1922; member of the American Medical Association; served in France during World War I; affiliated with Elyria Memorial Hospital, where he died June 29, aged 53, of carcinoma of the bladder.

Hardy, Charles Franklin, Kendallville, Ind.; the Hahnemann Medical College and Hospital, Chicago, 1895; member of the American Medical Association; past president of the Noble County Medical Society; died in St. Joseph Hospital, Fort Wayne, June 26, aged 79, of carcinoma of esophagus.

Jefferson, Benjamin Lafayette, Grand Junction, Colo.; University of Maryland School of Medicine, Baltimore, 1893; member of the American Medical Association; at one time elected to the state house of representatives and later to the state senate; served as U. S. minister to Nicaragua; formerly epidemiologist for the state health department; superintendent of the State Home and Training School for Mental Defectives; died in the Colorado General Hospital, Denver, July 21, aged 78.

Knox, Thomas Clifford, LeMars, Iowa; State University of Iowa College of Medicine, Iowa City, 1908; died in Sacred Heart Hospital July 12, aged 66, of uremia.

Lineberry, John Alson, Tarboro, N. C.; University of Pennsylvania School of Medicine, Philadelphia, 1938; member of the American Medical Association; county health officer; served as assistant surgeon in the U. S. Public Health Service Reserve; died in Edgecombe General Hospital June 30, aged 39.

McMurry, Marvin Caldwell, Paris, Mo.; Rush Medical College, Chicago, 1901; member of the American Medical Association; died July 17, aged 80, of cerebral hemorrhage.

Mann, Harry Fiske, Walton, Ky.; University of Louisville Medical Department, 1917; member of the American Medical Association; affiliated with St. Elizabeth Hospital, Covington, and Christ Hospital, Cincinnati, where he died July 1, aged 60, of uremia.

Norton, James Arthur, Conway, S. C.; University of Maryland School of Medicine, Baltimore, 1903; served in France during World War I; died July 21, aged 73, of carcinoma.

Ogilvie, James, New York; Columbia University College of Physicians and Surgeons, New York, 1899; died in Amesbury, Mass., July 12, aged 84, of arteriosclerotic heart disease.

Paniello, Santiago, Tampa, Fla.; Atlanta Medical College, 1916; served during World War I; affiliated with Centro Asturiano Hospital; died July 5, aged 63, of cerebral hemorrhage.

Riese, Bernhart L., Berkeley, Calif.; Chicago Medical College, 1887; died July 6, aged 84, of cerebral hemorrhage and arteriosclerosis.

Salmon, James Marvin, Ashland, Ky.; Jefferson Medical College of Philadelphia, 1896; member of the American Medical Association; past president of the Central Tri-State Medical Society; fellow of the American College of Surgeons; died July 24, aged 77, of heart disease.

Waters, Theodore Hammond, Norfolk, Neb.; the Hahnemann Medical College and Hospital, Chicago, 1901; for many years surgeon for the Chicago and North Western Railway; died in Lutheran Hospital July 21, aged 72, of carcinoma.

Weaver, Enoch Randall, Bristow, Okla.; Missouri Medical College, St. Louis, 1883; died June 25, aged 90, as the result of a fall.

FOREIGN LETTERS

PARIS

(From a Regular Correspondent)

July 10, 1950.

Reactions to Paraaminosalicylic Acid

Treatment with paraaminosalicylic acid is still rather recent, and accidents and incidents due to its administration are being noted. During the first therapeutic trials benign digestive disorders were found but they were not a major obstacle to the continuation of the treatment. Since then other inconveniences have been observed. A hemorrhagic syndrome with disappearance of prothrombin and a lengthening of the coagulation time has been reported by P. Croizat, J. Favre-Gilly and their associates (Lyons) after the third day of treatment with a daily dose of 8 Gm. Immediate discontinuation of the treatment and administration of vitamin K for 15 days brought coagulation time back to normal; the prothrombin rate increased by 50 per cent. Debré, Paraf and other authors of the Paris school also observed hemorrhagic incidents. P. Croizat and his co-workers found the prothrombin rate was often lowered from 100 per cent to 40 or 50 per cent after administration of the drug.

A. Dufourt, C. Ollagnier and their associates (Lyons) noted that of 18 female patients treated with paraaminosalicylic acid, four had definite menorrhagia from the beginning of the treatment. In 15 of 17 patients treated for over six weeks, the coagulation time was longer than 10 minutes (in four patients 15 minutes). In three patients of a series of eight, after three weeks of treatment, the coagulation time was twice as long. The time of bleeding was not modified, but in seven of 10 patients the Rumpel-Leede sign was positive. These disorders may be due to an undetected hepatitis, and the authors claim that treatment requires supervision of the coagulation time and the prothrombin rate in patients with a hepatic or hematic history. They compared these blood findings with those recently observed in France by Lutembacher, de Gennes, de Mahadou and others and in the United States by Shapiro, Link and others, to treatment with salicylic acid. In the discussion on this subject at the Medical Society of Lyons Hospitals on Feb. 6, 1950, Revol revealed that, in a study of 35 female patients, 20 had passed their menopause and presented no disorders following treatment with paraaminosalicylic acid; of 15 women under 40 years, four, who had been amenorrheic for several months, experienced reappearance of their menses and another had an increase of her menses. In 34 patients, Plauchu noted that of 14 who had received a total of 300 to 2,665 Gm. of paraaminosalicylic acid (15 Gm. per day), 11 had a coagulation time of 13 to 40 minutes; of eight patients who had received 105 to 190 Gm., in one the result of this test was 35 minutes and in one 45 minutes; in others the prothrombin rate was 80 and 85 per cent. All these modifications of coagulation were not accompanied with the classic hemorrhagic picture. Varied responses to the dose indicate a personal sensitivity. Nevertheless, Plauchu recommends the systematic administration of vitamin K prior to treatment with paraaminosalicylic acid.

Urticarial, pruriginous or scarlatiniform eruptions were noted among others, by Dufourt and his associates (Lyons) on the twenty-fifth day of treatment, accompanied with fever (101.3 F.). They were controlled by discontinuance of the treatment and administration of synthetic antihistaminics. Resumption of treatment with paraaminosalicylic acid provoked an immediate relapse accompanied, in two cases, with dyspnea due to allergic edema of the larynx.

Five days after the beginning of treatment, Gally and his co-workers (Lyons) saw an eruption of the urticarial type appear, and in two patients, on the ninth and eleventh days, pseudomalarial shock with rigors.

Tapie and his associates (Toulouse) reported to the Medical Society of the Paris Hospitals, on Nov. 25, 1949, one case in which, after 11 days of tolerance of a dose progressively increased, a febrile reaction with rigors, cephalea, erythema, tumefaction of the lips and transient oliguria occurred with a dose of 18 Gm. The authors believe that more research will reveal whether these accidents are due to certain impurities and a histamine-like factor rather than to paraaminosalicylic acid itself. Brun observed nervous accidents following treatment with the drug, and Thiers (Lyons) noted local reactions from treatment of subacute rheumatism with this drug.

Secousse, Tessier and their associates (Bordeaux) reported, on June 10, 1950, to the French Society for Tuberculosis, intolerance in 14 cases after treatment with paraaminosalicylic acid: purpura in three cases, icterus in two, subicterus, angioneurotic edema and pityriasis in one each, isolated urticaria in three and urticaria associated with other dermatologic manifestations in three.

A diffuse sensomotor polyneuritis with persistent double cubital paresis was observed by J. Brun, C. Mouriquand and E. Pommateau (Lyons) following treatment with paraaminosalicylic acid in a female tuberculous patient without any previous nervous or allergic history. The authors reported this observation on Dec. 5, 1949 to the Medical Society of the Lyons Hospitals. According to their bibliographic research, this is the first published case. The succession of absorption of the drug and disappearance of the pathological phenomena allows elimination of tuberculous polyneuritis as the cause.

Because of the frequency of digestive disorders following oral administration of paraaminosalicylic acid, J. Brun, J. Pellerat and Kalb (Lyons) tried to administer it intravenously with polyvinyl-pyrrolidine (subtosan®) in 25 per cent solution to delay elimination and guard against endovenitis. Tolerance was excellent. Of 20 patients in whom oral administration had to be discontinued on account of digestive disorders, 15 were treated by this method for one and two months; five have been treated for three months without interruption. In a few cases, it was possible to resume oral administration without provoking digestive disorders. At first the dosage was two daily intravenous injections of 2.50 Gm. At the present time the authors are giving 5 Gm. once or twice daily. Benign reactions, such as sudden flushes and transient cephalea, are rare. Shock, fever, hepatic or renal accidents did not occur with this mode of treatment. The comparative study of the elimination of paraaminosalicylic acid showed that elimination was delayed when it was combined with polyvinyl-pyrrolidine.

Second International Congress on Asthma

This congress was held June 3-5, 1950 at the Mont-Dore under the presidency of Professor Pasteur Vallery-Radot and was attended by 388 persons, representing 22 nations. Thirty-two reports and numerous discussions were offered to sum up present knowledge on asthma, 18 years after the first International Congress, which was presided over by Professor Justin-Besançon.

L. Cornil, H. Payan and J. Charpin (Marseilles) presented a report on the pathologicoanatomic aspects of asthma and B. Halpern (Paris) a report on experimental asthma. Dealing with the physiopathology of asthma, P. H. Rossier (Zurich)

stated that this disease could not be physiologically isolated from certain infections in which dyspnea is not predominant but which have common hypertrophic emphysema, distention edema and other respiratory disorders.

Santenoise (Paris, Lille) concluded that the numerous mechanisms involved in the crisis of asthma operate in a person under particular conditions, which can be revealed by tests for functional disorders; e. g., decrease of the blood cholinesterasic potency, disturbances of the sensitivity of respiratory centers to carbon dioxide, rise of the minimum pressure and fall of the maximum in the course of celiac reflex, which shows a hyperexcitability of the pulmonary vasoconstrictors, and determination of blood iron and oxygen.

Pretoxicosis Test

In collaboration with the Arts and Crafts Conservatory and the Technical Institute for Industrial Health and Hygiene, G. Bourguignon studied hygienic supervision by chronaxymetry of personnel exposed to intoxication. He observed pretoxicosis (by a method suggested first by F. Heym de Balsac) in personnel exposed to carbon disulfide (in synthetic textile factories). In this group chronaxies began to alter as early as the second month of contact, whereas first clinical signs (cephalea, weakness of the arms and legs, diminution of the sexual potency) usually appear 10 months later. The author was able to establish a characteristic electrical syndrome. In his communication of April 25, 1950, to the National Academy of Medicine, he urged using the chronaxic test, with chemical and hematological tests to permit early detection of intoxication. It would be necessary to subject to this test persons exposed to professional intoxication from their first day of contact with the toxic products and later at regular intervals. Bourguignon is pursuing his research in this field.

Congresses

The first International Congress of Internal Medicine will be held in Paris Sept. 10-14, 1950, under the presidency of Professor Lemierre. Over 150 reports and communications from representatives of all nations will deal with antibiotics, endocrinology, antehypophysis, parathyroid, liver, spleen, kidneys, pulmonary pathology, cardiovascular pathology, hematology, bones, rheumatism, infectious diseases, gastroenterology, neurology, nutrition, vitamins and various other subjects. Foreign members may communicate with Professor Justin-Besançon, 38, Rue Barbet de Jouy—Paris (7°).

The International Congress on Psychiatry will be held in Paris Sept. 18-27, 1950. The scientific work comprises six large plenary meetings with lectures and discussions of reports and communications on psychopathology of delirium, application of test methods to clinical psychiatry, cerebral anatomicophysiology in the light of lobotomies and topectomies, respective indications of methods of shock, evolution and present trend of psychanalysis and genetics and eugenics (social psychiatry). One section of psychiatry will embrace several meetings on the prognosis of character disorders in the child. Information may be obtained from the Secretary's Office, International Congress on Psychiatry, General Secretary, Docteur Henri Ey, I Rue Cabanis, Paris 14°.

Inscription of Antabuse® in Schedule A (Poisonous Substances)

The National Academy of Medicine appointed a commission to propose to the Minister of Public Health the inclusion of antabuse® in schedule A of poisonous substances. This decision was taken after serious and sometimes fatal accidents had been reported by various authors, mainly Swiss, following indiscriminate and unsupervised use of this drug. In a first communication, Jacobsen and Martensen-Lensen reported two fatal cases, one of which still remains unexplained.

ITALY

(From a Regular Correspondent)

FLORENCE, July 10, 1950.

Public Health in San Marino

In a meeting of the Medicosurgical Society of Romagna, Doctors Suzzi-Valli and Dominici reported on public health in the territory of the neighboring republic of San Marino. The speakers reported an average global mortality rate for tuberculosis of 1.19 per 1,000 persons during the four decades 1908-1947. This average rate increased to 1.28 for the decade 1938-1947. From the epidemiological point of view, a typical curve is observed in the endemic phase of the disease. The report on morbidity and mortality in tuberculosis and other diseases of the respiratory tract, including the open and closed active forms, the inactive forms and pleural diseases, for the decade 1938-1947, revealed 11 instances of disease for every deceased patient. A study of morbidity for the decade 1938-1947 disclosed an average index of 4.99 per 1,000 persons. The curve straightens out toward the transition line between the endemic and the epidemic phase of the disease but is closer to the former.

Dr. Suzzi-Valli reported on the rate of death from malignant tumors in the Republic of San Marino during the period 1908-1947. The average rate observed was nine deaths a year per 10,000 persons. The average minimum rate for the period 1908-1912 was 6.3. The average annual maximum figure in the period 1938-1942 was 13.2 deaths per 10,000 persons.

Despite improvement in the methods of diagnosis, the mortality from malignant tumors has definitely and progressively increased in the last decades. Malignant neoplasms of the digestive tract are the largest group; these constitute about 60 per cent of all tumors, with 40 per cent limited exclusively to the stomach.

The death rate for all malignant tumors was highest in the age group 75-79 years, women 9.7 and men 8.4 per 10,000 persons. If tumors of the uterus and the mammary glands are excluded, the average annual mortality rate for malignant tumors in women is 7.8. Malignant tumors caused an average of 5.05 per cent of all deaths in the 40 year period.

Narcoanalysis

The problem of narcoanalysis, which was discussed by Professor Palmieri at the Congress of Catholic Physicians and reported on in a previous letter, was discussed once more by the Roman Society of Legal Medicine. Professors Pannain and Grasso Biondi were the speakers. Magistrates, parliamentarians, university professors, physicians and lawyers attended. The general assembly of the society approved the following conclusions: 1. Narcoanalysis is acceptable for diagnosis and clinical prognosis, for therapeutic purposes and for scientific research, but it may be used only when the patient gives valid consent. 2. Without valid consent, narcoanalysis should be used only in cases of extreme necessity. 3. Narcoanalysis should not be used for judicial verification. 4. The use of narcoanalysis, or the use of any other technic which may injure, violate or offend the personality of the subject, is to be condemned for police and judicial investigation. In fact, all methods of investigation directed at breaking the physicopsychical resistance of the person, or those which in any way degrade the personality, are to be condemned.

Conference on Rheumatology

The first Italian Conference on Rheumatology was held in Acqui, sponsored by the management of the public medicinal waters of Acqui with the collaboration of the Italian Society for the Study of Rheumatism. The subject discussed was "Rheumatism as a Specific Disease." Reports presented by Professors Giuseppe Sabatini and Tommaso Galli emphasized the importance of rheumatism because of its worldwide inci-

dence. Early diagnosis, based on clinical and laboratory data, aids in control of the disease. The speakers discussed the newer therapeutic methods which have proved effective in rheumatic diseases.

A resolution was approved asking the government for the social and financial provisions which are urgently needed to check the spread of rheumatic diseases in Italy.

Prof. Pietro Marogna

The death of Pietro Marogna, emeritus professor of clinical surgery of the University of Cagliari, was announced. He was trained in the Surgical School of Genoa, headed by Professor Tusini. Professor Marogna was rector of the University of Sassari and, in addition, held the chair of clinical surgery. He wrote numerous papers, among which were studies on renal tuberculosis and on tuberculosis of the male sex organs. Of particular importance was his study on grafting of a pancreas stump onto the intestine, which preceded by many years some recent technics of pancreatoduodenectomy.

SWEDEN

(From a Regular Correspondent)

BODEN, Aug. 16, 1950.

Swedish Field Hospital to Korea

The Swedish government has offered to send a field hospital to the United Nations' armed forces in Korea, and the offer has been accepted by General MacArthur. The personnel, which numbers 176 persons selected among 600 applicants from all parts of the country, will leave for the United States at the end of August. Dr. Carl Eric Groth has been appointed chief of the hospital. Dr. Groth has held an important position in the Swedish army medical service as chief of its hospital bureau. He acquired personal experience of medical wartime service in Finland during the World War II and studied the American military medical service during several months in 1945. Dr. Gerhard Rundberg will assist him as an expert in field hygiene and epidemiology. Capt. Gunnar Nyby has been appointed military chief of the hospital. Miss Ester Svensson will be superintendent of nurses. She has 20 years' experience in surgical work. The equipment of the hospital will be the best available. To gain time part of the equipment will be bought in the United States. The costs are estimated at one million dollars.

Deficit of Nurses

Swedish hospitals have a large deficit of educated nurses. The average deficit for all general hospitals is 6.5 per cent. The highest percentage is found in some southern counties, where it amounts to 15 per cent. The real need, however, is still greater because many places are held by temporary substitutes who are not fully qualified. Only 80 per cent of the places have fully qualified personnel. In the Gotland County hospital in Visby only 50 per cent of the nurses belong to the permanent staff. The deficit is greater in the tuberculosis hospitals than in the general hospitals. Only 40 per cent of the nurses in the tuberculosis hospitals in Stockholm, Gothenburg and northern parts of the country are permanent members of the staff. Many wards in the hospitals have had to be closed temporarily.

Death of Dr. A. Lichtenstein

Dr. Adolf Lichtenstein, professor emeritus of pediatrics at the Caroline Institute, died in Stockholm July 21. He became ill in Paris on his way to the pediatric congress in Zurich and was brought to Sweden by airplane. He died within a few days of embolism. Dr. Lichtenstein was born in Stockholm in 1884. He received his degree in medicine at the Caroline Institute in Stockholm 1910. He served on the staff of various pediatric hospitals from 1910 to 1923 and as chief of the Stockholm hospital for infectious diseases from 1924 to 1932. Dr. Lichtenstein was professor of pediatrics and chief of the Pediatric Clinic in Stockholm from 1932 to 1949. He was one of the founders of *Nordisk Medicinsk Tidskrift*, a well known Swedish medical periodical. He had participated in international scientific work. At the time of his death he was chairman of the Swedish medical society (Svenska Läkaresällskapet).

NORWAY

(From a Regular Correspondent)

OSLO, Aug. 6, 1950.

Cesarean Section

During the past decade there has been a noticeable increase in the frequency with which cesarean section has been undertaken in Norway. This increase reflects certain advances associated with operative technic, a more extensive employment of blood transfusion and modern chemotherapy. In 1949, K. Skajaa published a study from the Oslo Municipal Maternity Hospital in which he showed that in the course of the past decade the ratio of cesarean sections to all confinements had risen from 1.1 to 4.9 per cent. A more recent study by S. Vasli of the Obstetrical-Gynecological Department of the Drammen Municipal Hospital reflects a similar situation. In the period Nov. 1, 1939-Nov. 1, 1949 a total of 6,810 women were confined at this hospital, and among them there were 149 who underwent cesarean section (2.2 per cent). During the first three years of the period under review, the cesarean sections represented only 1.7 per cent of the confinements, whereas during the last three years of the same period this ratio was as high as 2.7 per cent.

Reviewing his cases, Vasli points out that among them were 33 primiparas over the age of 35. It is particularly for the elderly primipara that the indications for cesarean section have lately been raised in the light of the improved prognosis for this operation. None of the primiparas died because of the operation. The two deaths Vasli recorded concerned elderly multiparas. Death was due in one case to bronchopneumonia, for which sulfapyridine had been given in vain. In the other fatal case labor had lasted four days before the patient was operated on. Severe, right sided parametritis set in, and she died four days after the operation, in spite of treatment with sulfathiazole and blood transfusion. Since August 1943, none of the 118 cesarean sections has proved fatal.

In nearly all these cases use was made of cervical incision—longitudinal incision during the first years of the period under review and transverse incision during the later years. Spinal anesthesia was used occasionally, but as a rule ether anesthesia was employed. The teaching that cesarean section contraindicates a later confinement by natural means, on account of the risk of rupture of the uterus, is not supported by the fact that among Vasli's cases there were nine women who underwent 10 confinements by the natural route after an earlier cesarean section. There were as many as 11 women in this material who underwent cesarean section twice.

Diet of the Norwegian Merchant Marine

Dr. Johan Knap, of Sandfjord, has for some time been making a special study of the Norwegian seaman's diet and has concluded that there is wide scope for reform in feeding habits, educational propaganda and mental outlook of the seaman himself. He discourages made-up dishes, scraps and reheated food. It is a common experience of ships' doctors and captains that the seaman is particularly liable to digestive disturbances in the form of gastric and duodenal ulcer and catarrh, constipation and appendicitis. Captains find that half their medical duties consist of distributing aperients and other remedies for gastrointestinal disturbances.

Dr. Knap has found a remarkable change in recent years in the diet in the Norwegian merchant marine. The consumption of meat (including pork), butter and margarine has increased tremendously, much above the level previously regarded as nor-

mal. On the other hand, the consumption of cereals, roots (including potatoes), vegetables, fruit and fish has shown no corresponding rise. This means that the Norwegian seaman indulges in a diet rich in cholesterol. There also is an enormous consumption of coffee at the present time. While it is obvious that the Norwegian seaman is encouraged to waste his food, to eat too much of it and to lack a balanced diet, reflecting the character of his work and his particular place at a given time, it is difficult to obtain precise information on the subject in terms of calories, food values, balanced diet and the like. Likewise, it is not easy to introduce reforms acceptable to all the parties concerned.

Serologic Tests for Syphilis

At Gade's Institute in Bergen, Prof. Th. M. Vogelsang has for several years undertaken comparative studies of various serologic tests for syphilis. His latest investigations throw valuable light on the comparatively new cardiolipin antigen employed in the Wassermann test and said by Kline in 1949 to be the most brilliant contribution to the serologic diagnosis of syphilis since the introduction of the Wassermann test. Professor Vogelsang has tested the four following reactions on the serums sent to Gade's Institute in recent times: (1) the Wassermann test carried out with cardiolipin antigen, (2) the Wassermann test carried out with crude antigen, (3) the Kahn standard test and (4) the Meinicke clarification test. The 30,000 serums examined were classified according to the presence or absence of anamnestic and clinical evidence of syphilis. As many as 7,010 serums were derived from pregnant women, whose serologic examination is now obligatory in Norway.

Professor Vogelsang has concluded that the Wassermann test carried out with cardiolipin antigen is less sensitive than the Meinicke clarification test and a Wassermann test carried out with a crude antigen fully cholesterinized, but in this respect it is considerably better than the Kahn standard test. On the other hand, the Wassermann test carried out with cardiolipin antigen seems to be definitely more specific than the other tests. It is for this reason that Professor Vogelsang is in favor of using this antigen for the standard method until still more specific reagents are evolved. Various laboratories throughout the world are working with different methods and standards, which renders comparisons of their results unsatisfactory.

The World Health Organization is interested in promoting uniformity of technic and standards in this field, and it is hoped that the conference in Helsingfors, which Professor Vogelsang was invited earlier this year to attend in order that he might give it the benefit of his experience with the various serologic tests for syphilis, will provide a definite advance in this respect.

BOLIVIA

(From a Regular Correspondent)

La Paz, Aug. 1, 1950.

General Notes on the Country

Bolivia, a land-locked country located in the central part of South America, has an area of about 538,000 square miles (twice that of France) and about 3,500,000 inhabitants. One third of the country is in the Andean range, which has some of the highest and most massive mountains in the world. In Bolivia, the Andes split to form two ranges, between which, at an average altitude of about 10,000 feet, is a vast plateau, the altiplano, on which lives the majority of the population. The remaining two thirds of Bolivian territory are sparsely populated lowlands, mostly jungle, crossed by many rivers. One half of the population is Indian, and about 35 per cent more are of mixed blood. Among the important factors which make the solution of the medical and public health problems difficult are the general poverty, lack of education and unsanitary customs of a large part of the population. Added to these is the problem of transportation, which in some places appears insurmountable. The economy is dependent chiefly on mining.

The outstanding disease problems are tuberculosis, malaria, parasitosis, infant mortality, intestinal infections and leprosy. Other important diseases the incidence of which is serious from time to time are typhus, yellow fever, plague and Chaga's disease. There are only 652 physicians, about 125 professional nurses and about 3,000 hospital beds to meet these and all other medical problems. Practically all the public health and sanitation activities are carried out by the Servicio Cooperativo Interamericano de Salud Pública (SCISP), an official agency created and supported by the Institute of Inter-American Affairs and the Bolivian government, and the División de Endemias Rurales, which is supported by the Rockefeller Foundation and the Bolivian government.

Leprosy

Leprosy is one of the endemic diseases which has been of increasing concern in Bolivia. Recently (July 1950) Dr. Lauro Souza-Lima of the Pan-American Sanitary Bureau and Dr. John J. Hanlon of the Institute of Inter-American Affairs were commissioned by the Ministry of Health to study the problem and to make recommendations. There were found to be about 500 known cases, with probably 1,000 without diagnosis. The majority of these are in the sparsely populated eastern lowlands.

While this incidence is low in comparison with that in neighboring Paraquay and Brazil, the disease tends to be severer in Bolivia and there are indications that the incidence is increasing. Particularly to be feared is the possibility of eventual establishment of the disease in the more densely populated highlands, where poverty, malnutrition, lack of sanitation and overcrowded household conditions may favor its spread.

An attack on the problem is made particularly difficult because of the present economic condition of the country. Because of the present impossibility of an ideal solution, the establishment of a modern leprosarium and a preventorium, it was recommended that the children of lepers be allocated to existing orphanages and that known lepers be treated primarily with sulfonamide drugs on an outpatient basis in whatever health centers, dispensaries, hospitals or other facilities may be available in each locality or settlement. Concurrently, it was recommended that there be educational preparation of the public and the medical profession.

Plague Outbreak

Bubonic plague apparently enjoys a low grade endemicity in Bolivia, occasionally flaring up in epidemic form. Seventeen years ago, a severe epidemic occurred in the Department of Chuquisaca. At that time there were over 1,000 deaths in a relatively small population. Five years later, it recurred in epidemic form, affecting not only the Department of Chuquisaca but also the Camiri and Choreti zones of the Santa Cruz Department. There were 150 known cases and 62 deaths. Typically, the epidemic was preceded by an epizootic in rats. At the time, the town of Choreti was destroyed by fire in an attempt to check the epidemic.

As a result of this epidemic the Ministry of Health created a special section devoted to the prevention of plague. Since 1948 the program has been included in the program assisted by the Rockefeller Foundation. Since that time, dichlorodiphenyltrichloroethane (DDT), 1080 (a sodium fluoroacetate preparation) and alpha-naphthylthiourea (ANTU) have been widely used in known and suspected plague areas.

During July of this year, it appeared that bubonic plague was beginning to assume epidemic form. Five cases were reported within a few days from the province of Florida in the Department of Santa Cruz. Dr. Marzana, director of the antiplague section, reports that an intensive antirat campaign is under way in the affected area and that the disease is apparently under control.

CORRESPONDENCE

ANTERIOR POLIOMYELITIS AND PERTUSSIS AND DIPHTHERIA IMMUNIZATION

To the Editor:—You are doubtless aware of three recently published studies in British medical literature concerning the effect of pertussis and diphtheria immunization on the occurrence and pattern of infantile paralysis: 1. "Local Paralysis in Children After Injections" (Guys Hospital series of 1944-1948 with 1 case early in 1949) by J. K. Martin. This was received for publication Oct. 24, 1949 and published in *Archives of Diseases in Childhood* March 1950 (**25**:1). 2. "The Relation of Prophylactic Inoculations to the Onset of Poliomyelitis" (Victoria, Australia, 1949 series) by Bertram P. McCloskey, which was apparently written late in 1949 and was published in the *Lancet* (**1**:659 [April 8] 1950). 3. "The Incidence of Paralysis Occurring in London Children Within Four Weeks After Immunization" (London 1949 series) by Dennis H. Geffen, Medical Officer of Health for the Metropolitan Borough of St. Pancras, a paper read Oct. 7, 1949 and published in the *Medical Officer* April 8, 1950 (**83**:137).

Geffen in his article refers to a study by A. H. Gale as follows: "In a paper prepared by Dr. Gale of the Ministry of Health, 65 cases are analysed, in which the time relation, usually about 14 days, between the injection and paralysis suggested a *prima facie* case for investigation. The question arose in this investigation as to whether the paralysis was due to a brachial neuritis or poliomyelitis, and if the latter, as to whether it was due to the presence of virus in the antigen or to needle infection. The paper generally seems to indicate that the paralysis following injection was due to poliomyelitis for the cases occurred during the seasonal incidence of poliomyelitis, and in addition there was evidence of a high incidence of poliomyelitis in the areas involved at the time—for example, Leicestershire in 1942 and South Staffordshire in 1945. Diagnosis in this survey was usually at the time of onset of the paralysis, but in at least 34 cases there was a febrile illness at onset with signs of meningeal irritation. It is most interesting to note that in 49 cases the paralysis was confined to the limb into which the injection had been given."

The subject was discussed on April 21 at a crowded meeting of the Epidemiology and State Medicine Section of the Royal Society of Medicine, reported in the *Lancet* of April 29, 1950 (1:819). Dr. F. M. Burnet of Melbourne spoke for Dr. McCloskey's series, and Prof. A. Bradford Hill of the London School of Hygiene and Tropical Medicine outlined preliminary results of a pilot survey in English sanitary districts made with Dr. J. Knowelden. In a series of poliomyelitis patients under 5 years of age the distribution of paralysis was compared with the sites of inoculation, and the inoculation history was compared with a control series of measles cases in the same area at the same time, with a similar age and sex distribution. "It was clear from the findings that the Australian experience was not unique; it was easy to see a concentration of paralyzed cases among those most recently inoculated, and the election of the inoculated limb for paralysis. It seems likely that inoculation with antigens during the early stages of poliomyelitis does increase the incidence of paralysis as well as determine the site. But Hill pointed out that his data give no guide to the relative risks involved, e. g., as between the different antigens." Geffen, Gale and Martin also spoke.

The three published series of cases were, in general, distinct and separate, though the two unpublished series may include some cases reported in another series.

Dr. Martin's paper, entitled "Local Paralysis in Children After Injection," was more clinical than epidemiologic, and, though he did not definitely call the disease in his cases poliomyelitis, as a whole it could hardly have been anything else, with a margin of error in individual cases such as would apply to poliomyelitis diagnoses in general. There were 17 patients in his own series, though he refers to 60 odd others whose records he has used, from 9 months to 14 years old; his patients were all under 3 years of age, paralleling the age of most frequent immunization as it changed from school age to infancy during 1941-1949. All had paralysis within 28 days of injection, mostly between seven and 21 days. In only 2 cases was there any paralysis noted except in the limb in which the injection was given, and then it was transient. In 10 of the 17 patients the upper limb or limbs are noted as the site of injection, in 5 the buttock or buttocks, and in 2 the site is not specified. Nine received diphtheria prophylactic, 1 pertussis, 5 diphtheria and pertussis and 2 penicillin. The series is not at all convincing, only suggestive. One could possibly collect such a series in any large poliomyelitis outbreak where immunization was general without any special tendency toward localization in the epidemic as a whole. As the author points out, "When the number of inoculations given is considered, these complications are obviously rare." He cites a survey by McFarlin of the 495 cases of poliomyelitis in children under 10 years of age in England and Wales during 1947. Fourteen of these had immunization against diphtheria or pertussis within one month before paralysis.

Just as with the danger of rubella during early pregnancy, the clearest initial evidence on this difficult question comes from Australia. Dr. McCloskey is the poliomyelitis officer to the State Health Department at Melbourne, where Dame Jane Macnamara has had great influence on the careful, logical handling of poliomyelitis. This study was conducted concurrently with the occurrence of cases. It is interesting and perhaps valuable that at the start of the investigation "any real association between inoculation and poliomyelitis infection was considered highly improbable." Of the 375 reported cases of poliomyelitis in Victoria from January to August 1949 (six months ahead of the poliomyelitis season in the Northern Hemisphere) 340 were studied for such association, the other 35 patients being inaccessible or having parents who could not be located. There was no other selection of cases. All statements of the parents about inoculation were checked with the records of the physician who performed the inoculation except in 4 cases in which such confirmation could not be obtained. These 4 were recorded as doubtful and excluded from consideration. The 31 cases with inoculation history within three months of onset were indistinguishable from the other cases of poliomyelitis clinically; all but 1 of the 31 were paralytic. Most of the cases were carefully studied in the Melbourne hospital for infectious diseases as to degree and distribution of paralysis, and this study always preceded the inquiry as to the sites of inoculation.

Of the paralytic patients receiving combined pertussis and diphtheria immunization or pertussis alone within three months of onset, all 20 had their severest paralysis in the inoculated limb. Of the 10 receiving diphtheria immunization alone, only 3 had their severest paralysis in the inoculated limb. Of the 31 patients inoculated within three months of onset, the first symptoms occurred in 61 per cent between seven and 14 days after inoculation, a rate of 2.38 cases per day, as compared with 0.14 cases per day for the remainder of the three months

considered. One or two cases of poliomyelitis in Melbourne nurses about 10 days after typhoid-paratyphoid vaccination are cited.

Dr. Geffen's inquiry was made toward the close of the 1949 London epidemic. He found that 6 patients in St. Pancras had been immunized within 22 days before the onset of poliomyelitis, and, by communicating with the medical officers of health of the remaining 28 London boroughs, he found 31 other children under 5 years of age in whom poliomyelitis developed within four weeks of their inoculation against diphtheria and/or whooping cough, out of 182 children under 5 years of age with reported poliomyelitis in London during the outbreak. Thirty of the 37 had paralysis affecting in particular the inoculated limbs. In a smaller number of cases, not considered in detail, in which a longer interval occurred between inoculation and poliomyelitis, there was no tendency toward localization of paralysis in the inoculated limb.

These data are of the same nature as those which have led physicians generally to postpone elective throat operations on children during the poliomyelitis season. The risk in either case must be a small one.

On the request of Surgeon General Scheele, Dr. Joseph A. Bell surveyed the American data available regarding immunization injections and poliomyelitis and found in these data no basis for fear that immunization has a deleterious effect on the incidence of poliomyelitis. Large numbers of cases with controls, studied particularly with this end in view, would be necessary to establish any numerical relationship. There can be hardly any doubt that the practice of immunization against diphtheria and pertussis saves more children than would suffer from the rare occurrence of poliomyelitis consequent to immunization. Yet these British experiences, and especially the Australian experience, suggest the advisability of postponement of routine elective immunization, as is done with tonsillectomies, during the summer and early fall, particularly when the poliomyelitis incidence is relatively high. These studies tend to incriminate pertussis immunization more than diphtheria, but Bell has shown (J. A. M. A. 137:1009 [July 17] 1948; 1276 [Aug. 7] 1948) that diphtheria immunization is best carried out combined with pertussis vaccine, and the combination of both with tetanus toxoid is common in this country. In any case, effort should be directed in civilian as well as in military practice toward making the reactions consequent on immunization as mild as possible, since it is suggested in these poliomyelitis series that severity of reaction might have been a factor.

It has long been clinically observed that undue physical activity often preceded an attack of poliomyelitis. Dorothy Horstmann (J. A. M. A. 142:236 [Jan. 28] 1950) has recently presented additional evidence statistically demonstrating a significant increase in the incidence and severity of subsequent paralysis when physical activity was performed after the second phase or major illness began. Her grouping of degrees of activity hardly allows of account being taken of especially severe strain during the possible incubation period (before onset of symptoms, or other especial indication for restriction of activity); yet in her tables, uniformly, the groups with mildest or no paralysis showed less activity during the days preceding the onset of the major illness than did those with moderate or severe paralysis. Unusual and unnecessarily severe stress of any sort, whether physical activity, chilling, unaccustomed sunning or severe reactions which might occur with inoculations, had best be avoided in children during poliomyelitis seasons. Routine smallpox vaccinations are also best avoided during the summer (Leake: Questions and Answers on Smallpox and Vaccination. Reprint 1137 from Public Health Reports, 1946 Revision, p. 19).

JAMES P. LEAKE, M.D.

ADDENDUM

Since this letter was written, June 11, 1950, Professor Hill's report has been published (Hill, A. B., and Knowelden, J.: Inoculation and Poliomyelitis, a Statistical Study in England and Wales in 1949, *Brit. M. J.* 2:1 [July 1] 1950), together with a supplementary report from the London Virus Reference Laboratory of the Public Health Laboratory Service (MacCallum, F. O.: Clinical Poliomyelitis in Association with Peripheral Inoculation of Prophylactics, *Brit. M. J.* 2:6 [July 1] 1950) showing that, in all five of such cases in which the examination was made, true poliomyelitis virus was found in the stools of the patients.

Hill's study might be termed the official English inquiry on the subject for the present, since it was undertaken at the suggestion and with the continual encouragement of the then Chief Medical Officer to the Ministry of Health, Sir Wilson Jameson, and since the data were obtained through the different Medical Officers of Health of the areas concerned. Hill states that a full answer would require the numbers of children of given age inoculated with defined antigens at given points of time and in specified areas, and the number of those in whom poliomyelitis developed within specified periods. "Such a method is the *only* means by which those risks can be satisfactorily evaluated." From an American point of view, it may be considered that it is hopeless to wait for such an evaluation. Now that the warning has been sounded, it is too much to expect that any areas can be found where exact records of all inoculations will be kept and that the inoculated and uninoculated patients with poliomyelitis be observed in sufficient number and with sufficient uniformity and care and lack of bias to yield the answer. Attempts here in the United States to keep such records in the case of tonsillectomies have not yielded enough cases of poliomyelitis to give any satisfactory numerical appraisal of the risk, which with this prophylactic measure as well as with inoculations must be very small and variable.

To quote Hill and Knowelden again, "In the circumstances it was essential to use a speedier, even if less comprehensive, approach." The records of 410 poliomyelitis patients under five years of age from the 39 areas having most cases in 1949 were studied, and for 164 of these cases the experience of control children regarding immunization was compared. The control for each case of poliomyelitis was a child of the same sex and very nearly the same birth date. Of the controls 88 were cases of measles reported very shortly after the corresponding case of poliomyelitis, and 76 were simply taken from the birth register to get a child of the same age and sex still living in the area.

There was some excess among the poliomyelitis cases, as compared with their corresponding controls, of inoculations within 28 days of the onset. In the poliomyelitis patients who had been inoculated within these four weeks, particularly between eight and 17 days before onset of the poliomyelitis, there was an excessive prevalence of paralysis in the limb inoculated. This applied whether diphtheria toxoid or combined diphtheria and pertussis immunization was employed. Pertussis vaccine alone was used too seldom to give any conclusions. Two statements are worth quoting. "There is no evidence whatever that inoculations carried out in the more distant past (beyond four weeks) have any effect at all on the incidence or localization of paralysis. These effects appear to be confined to injections given within about a month of the onset of poliomyelitis, and after that interval from inoculations no risk need be envisaged." "The immunization campaign which began (in England) in 1942 has led, it is well known, to a dramatic reduction in the incidence of, and mortality from, diphtheria."

"THE GRANNY RACKET"

To the Editor:—Sir Heneage Ogilvie, surgeon to Guy's Hospital in London, was a visitor to this country last year, and I am informed that he is coming again. While here last year, he made a talk before the Western Surgical Association (according to a report from a member of that society) for which he was paid a fee. While attending the meeting of the Western Surgical he was asked (I am also informed by a member of that society) by one of its members how he liked the British system of government medicine. He replied that he liked it, whereupon he was told that we wanted no part of it here. In spite of this, he gave a lengthy interview to the newspapers praising the British system, much to the annoyance of members of the Western Surgical Association who felt that more courtesy could have been shown. There are many of us who feel that the British are the salt of the earth, but the occasional Britisher can offset this good will by some ill timed action. I gather that Sir Heneage did not make himself completely *persona grata* to the Western Surgical Association.

To cap the climax, on returning to England Sir Heneage wrote a paper, published as the leading article in the *British Medical Journal* for March 25, 1950, entitled "The Granny Racket." His title was a paraphrase of the title of an article by Mr. Harold Stassen published in the February *Reader's Digest*, entitled "Granny Is Gone." In his article Sir Heneage makes various and sundry uncomplimentary remarks about American medicine. Among them he says: "The large American hospitals which are not State-owned or limited to paying-patients are 'in the red.' They are facing a loss that increases every year, and they are increasingly worried over it. The poor American is worse off than Granny, for he gets very little unless he pays for it." Perhaps we do get little unless we pay for it but we like independence. Sir Heneage and his compatriots, however, are getting very much that they don't have to pay for; others are underwriting the bill.

He then speaks of "the chicanery and commercial dealing to which the sick American may fall prey if he is unlucky." Certainly the accounts of most British doctors who have been over here since their government medicine was put into effect would indicate that the sick Britisher is far more apt to be "unlucky" than the sick American. Then Sir Heneage states: "The number of common bile ducts divided in America every year by incompetent surgeons exceeds those so injured in Britain by a significant margin." I would like to know where the learned doctor gets his figures. It could be that Americans are honest in publishing their unfavorable results.

Another statement of Sir Heneage: "The time when wealthy philanthropists were able to found and maintain institutions is past." That is undoubtedly true in England, where their leveling process, owing to radical socialism, has reduced the income of everyone and has practically eliminated the wealthy class. God forbid that we should reach such dire straits in this country.

Sir Heneage expresses the hope in conclusion that "the American profession itself will take the first steps in its own development on a modern nation-wide scale." In other words, I presume he means that misery loves company and that he wants to see American medicine deteriorate by following the path traveled by British medicine.

Fortunately all Britishers are not alike. This is fortunate both for them and for us. In the *British Medical Journal* for May 8, 1950, three English doctors wrote letters protesting against the article of Sir Heneage. They point out that a number of distinguished American physicians and surgeons have gone to England to study their health services and have gone in a most friendly and inquiring spirit. One of them points out that Mr. Stassen went to England as a friend of England to make a firsthand examination for himself, and that he made a very factual report on the conditions found there. Another says: "One wonders whether Sir Heneage realizes how much of our clinical freedom and of our standing as members of the greatest profession of all has already been sacrificed to a political dogma."

We do not have to despair completely. The spark of freedom is still alive in England just as it is here. Perhaps the spark can be fanned into a flame. Unfortunately, there are too many people in both countries, who, for political or doctrinaire reasons, are willing to pursue a political philosophy, which hitherto has been totally abhorrent to both peoples.

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EFFECT OF DRUGS ON REPRODUCTION

To the Editor:—An opportunity for valuable investigation of human semen exists but is neglected.

In spite of earnest study for many decades, too little is known about the qualities of semen in health and disease. Even students best versed in the study of male fertility and infertility are not yet agreed on a standard for "normal" semen. With good reason it is suspected that systemic diseases alter semen and impair fertility, but the clinician dealing principally with infertile men usually has no opportunity to make a logical study of the problem. A proper research approach would be to analyze the semen of a group of men suffering from peptic ulcers, hypercholesteremia, chronic infectious disease (such as bronchiectasis) or any other disorder suspected of affecting semen quality and to compare the findings with those in healthy men. Or patients who are receiving a special treatment, such as insulin, or ACTH or radioactive iodine could be studied to learn what effect these drugs have on the sperm count. Such research on semen, undertaken as a subordinate investigation when other studies are under way, would speed our solution to the now unsolved problem of the cause and treatment of defective spermogenesis. By way of illustrating what might be done: The May 1950 issue of *Fertility and Sterility* carried an article by Goldman reporting testicular atrophy in hamsters who had been fed cholesterol, while *Science* on July 21, 1950, contained a report by Ancel Keys and his co-workers, on 482 men whose cholesterol intake was raised or lowered for the purpose of a particular study. With a sense of desperate regret, one realizes that seminal changes which may have occurred in Keys' patients will never be known. Again: The September issue of *Fertility and Sterility* contains an editorial speculating on the effect of ACTH on spermogenesis; the July 1, 1950 issue of THE JOURNAL publishes Klings' report on results of ACTH administration for arthritis.

Therefore, I most earnestly suggest to my colleagues, particularly to internists, that when clinical research involving the use of special drugs or carefully controlled diets is being planned on a reasonably large group of mature men, thought be given to the possibility of studying the sperm count and other attributes of semen before and after treatment. Those of us primarily interested in sterility who have no opportunities for such research will gladly give counsel in "setting up" the problem.

PENDLETON TOMPKINS, M.D.

CURRENT MEDICAL LITERATURE

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery

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"Third Era" of Biliary Tract Surgery. S. W. Windham.—p. 333.
Treatment of Tuberculous Meningitis: Report of 2 Cases. C. K. Pitt. —p. 344.
Management of Acute Head Injuries. W. G. Haynes.—p. 349.

19:393-344 (June) 1950

Ten-Year Review of Intussusception at Jefferson-Hillman Hospital, Birmingham, Alabama. G. C. Buck and S. J. Campbell.—p. 393.
Management of Patient with Thyroid Disease. A. A. Wood.—p. 397.
Surgery for Duodenal Ulcer. W. C. Simpson.—p. 402.

American Heart Journal, St. Louis

39:477-636 (April) 1950

Thiocyanate in Hypertension: Blood Pressure Behavior After Withdrawal of Drug and Serial Electrocardiograms as Criteria of Response. E. J. Fischmann and A. Fischman.—p. 477.
Cold Pressor Test Follow-Up Study for Seven Years on 166 Officers. H. G. Armstrong and J. A. Rafferty.—p. 484.
Digital Blood Pressure Determination. III. Study of Effect of Tetraethylammonium Chloride on Cardiovascular Dynamics, Making Use of Blood Pressure Responses at Digital Level. D. F. Bohr, J. C. Weaver and F. H. Leeds.—p. 491.
*Value of Miniature Radiography in Detection of Heart Disease. A. K. Mathisen, W. Morris and G. B. Wilson.—p. 505.
New Aids in Diagnosis of Dextrocardia. C. B. Chapman and T. B. Gibbons.—p. 507.
Normal Respiratory Variation of Cycle Length, Q-T Interval and Corrected Q-T Interval of Electrocardiogram. V. de Lalla Jr. and H. R. Brown Jr.—p. 519.
Duration of Q-T Interval in Myocardial Infarction. S. O. Krasnoff. —p. 523.
Electrocardiographic Diagnosis of Coronary Insufficiency by Leads Demonstrating Left Ventricular Cavity. S. G. Odle, L. Wechsler and J. H. Silverberg.—p. 532.
Electrocardiographic Signs of Myocardial Infarction in Presence of Bundle Branch Block: II. Myocardial Infarction with Right Bundle Branch Block. W. Dressler, H. Roesler and A. Schwager.—p. 544.
Effects of Emetine Hydrochloride on Electrocardiogram in Man. L. Kent and R. C. Kingsland.—p. 576.
Unipolar Electrocardiogram of Newborn Infant. A. I. Schaffer, J. Burstein, A. V. Mascia and others.—p. 588.
Effect of Increased Venous Return on Venous Pressure in Patients with Congestive Heart Failure. H. N. Hultgren.—p. 592.

Miniature Radiography in Detection of Heart Disease.—Mathisen, Morris and Wilson examined all 4 by 5 inch roentgenograms taken at the Vancouver Unit of the Division of Tuberculosis Control for abnormal cardiovascular shadows. Patients whose roentgenograms were questionable were given a clinical examination, and a 14 by 17 inch roentgenogram was taken. Fluoroscopy and electrocardiograms were done when indicated. From a total of 7,093 roentgenograms, 158 showed abnormal cardiovascular patterns. Ninety of these patients were found to have heart disease. The types were hypertensive cardiovascular disease (42), arteriosclerotic (15), rheumatic heart disease (26), congenital heart disease (6) and thyrotoxic heart disease (1). Thirty-three patients were unaware of existing heart disease, and a number of others who knew of their lesion did not attribute their symptoms to it. In the same period only 22 cases of tuberculosis were discovered, 13 active and 9 apparently arrested. The advances in the surgical treatment of congenital heart disease make early detection essential. Earlier recognition of the rheumatic and degenerative types of heart disease and proper treatment may prolong life. A number of those who were unaware of their cardiac lesion were engaged in strenuous occupations. It is this group that can be aided by a change of employment compatible with cardiac limitations. These observations indicate that the mass chest roentgen survey is an excellent method of case finding in heart disease as well as in tuberculosis.

39:637-798 (May) 1950

Form of QRS Complex in Normal Precordial Electrocardiogram and in Ventricular Hypertrophy. G. B. Myers.—p. 637.
Three Unusual Cases of Parasystole. D. Scherf and L. J. Boyd. p.—650.
*Acute Cor Pulmonale in Absence of Pulmonary Embolism. I. Mack, R. Harris and L. N. Katz.—p. 664.
Syndrome of Cardiopulmonary Schistosomiasis (Cor Pulmonale). M. R. Kenawy.—p. 678.
Effect of Dicumarol upon Mortality and Incidence of Thromboembolic Complications in Congestive Heart Failure. G. M. Anderson and E. Hull.—p. 697.
Effects of Magnesium upon Cardiac Arrhythmias. C. D. Enselberg, H. C. Simmons and A. A. Mintz.—p. 703.
Effects of Potassium upon Heart, with Special Reference to Possibility of Treatment of Toxic Arrhythmias Due to Digitalis. C. D. Enselberg, H. G. Simmons and A. A. Mintz.—p. 713.
*Results of Treatment of Coronary Arteriosclerosis with Choline. L. M. Morrison and W. F. Gonzalez.—p. 729.
Influence of Insulin Shock Therapy on Electrocardiogram. B. L. Zohman and H. I. Russek.—p. 737.
Studies on Rapidity of Complete Blood Circulation in Man. G. C. Sutton, J. Karnell and G. Nylin.—p. 741.
Electrokymographic Studies in Aneurysm of Left Ventricle. P. Samet, J. B. Schwedel and H. Mednick.—p. 749.
*Spontaneous Perforation of Aortic Aneurysm into Superior Vena Cava with Survival for 136 Days. J. H. Sircta.—p. 782.

Acute Cor Pulmonale.—Mack, Harris and Katz state that the functional alterations which occur in acute cor pulmonale fall into two groups, (1) sudden dilatation of the right ventricle with clockwise rotation of the heart along its longitudinal axis and (2) development of myocardial ischemia, which is the result of a reduction in coronary flow, diminished oxygenation of blood flowing through the lungs and an increased oxygen requirement of the heart as a result of its increased work. Some of the electrocardiographic changes occurring in acute cor pulmonale may be explained by dilatation of the right ventricle and rotation of the heart; others are explained on the basis of myocardial ischemia. Since the terms acute cor pulmonale and acute pulmonary embolism have frequently been used interchangeably, it was the aim of Mack and associates to demonstrate that there may be causes or precipitating factors for acute cor pulmonale, other than pulmonary embolism. They cite 2 cases with necropsy in which pulmonary embolism was absent but in which massive destructive pulmonary disease with or without major thoracic surgery led to the development of the typical picture of acute cor pulmonale. The term was extended to include also those conditions in which a sudden left to right shunt is produced, as occurs in interventricular septal perforation or rupture of an aortic aneurysm into the right ventricle.

Choline in Coronary Arteriosclerosis.—Morrison and Gonzalez used the lipotropic agent, choline, a member of the vitamin B complex, in treatment of coronary arteriosclerosis. The drug was given to 115 patients with diagnosis of coronary thrombosis indicated by typical serial electrocardiograms and the clinical history. They had survived the acute episode of occlusion and were discharged from the hospital six weeks from the date of their admission. Alternate unselected patients served as controls and were not treated with choline. The authors aimed at giving a maximum of 32 Gm. of choline daily by mouth. Many patients were unable to take this dose

for prolonged periods. The average oral dose for most patients was 12 Gm. daily. Gastroenteritis, vertigo or body odor were occasional unpleasant side reactions. The choline treatment was continued for one year by 52 subjects, for two years by 35 subjects and for three years by 28 subjects. At the end of the three year period 14 of the 115 patients who had been treated with choline and 35 of the 115 who had not received choline were dead. Thus the subsequent mortality rate of patients who had suffered an acute coronary thrombosis with myocardial infarction appeared to be significantly reduced by treatment with choline. These studies suggest that the lipotropic agent choline is of value in the treatment of coronary arteriosclerosis.

Perforation of Aortic Aneurysm.—Sirota reports a man aged 41 who had contracted syphilis at the age of 20 for which he was treated by injections for nine months. He had been asymptomatic since then until three weeks ago, when, arising from an afternoon nap, he noticed cyanotic swelling of his neck, face and hands. During the ensuing three weeks the edema increased to involve his thorax and the upper part of his abdomen. The edema was associated with progressive dyspnea and orthopnea. In spite of digitalis therapy, oxygen administration and mercurial diuresis, his orthopnea, cyanosis and drowsiness became more severe. After one week improvement became manifest; however, this was short-lived and during the fifth hospital week signs of congestive heart failure recurred with increasing dyspnea, orthopnea, edema and pulmonary congestion. During the eighth hospital week the right superficial epigastric vein was seen to pulsate. An arteriovenous aneurysm between the aorta and superior vena cava was now diagnosed. An exploratory thoracotomy was performed, but operative intervention appeared inadvisable and the thorax was closed. The patient died on the forty-first postoperative day, one hundred thirty-six days after the acute perforation of an aortic aneurysm into the superior vena cava. The necropsy presented the criteria for the diagnosis of a fistulous communication between the aorta and superior vena cava. There were: (1) a sudden onset of a severe superior vena caval syndrome with edema, cyanosis and increased venous pressure limited to the upper half of the body; (2) positive blood serology; (3) a loud continuous murmur and thrill with systolic accentuation exhibited with greatest intensity over the region of the ascending aorta; (4) a pulsating mediastinal mass in the region of the ascending aorta; (5) cardiovascular dynamics of an arteriovenous aneurysm with an elevated pulse pressure, and (6) pulsating veins and spinal fluid. The position of the aortic aneurysm was such as to produce obstruction of flow in the superior vena cava below the azygos vein ostium, which, while causing extension of the edema and cyanosis, delayed the onset of severe right-sided heart failure and explains the relatively normal venous pressures in the inferior vena caval system late in the course of the disease. The azygos vein apparently bore the brunt of the fistulous blood flow. This accounts for the pulsating spinal fluid and the pulsating right superficial epigastric vein.

American Journal of Clinical Pathology, Baltimore

20:403-502 (May) 1950

*So-Called "Lupus Erythematosus Inclusion Phenomenon" of Bone Marrow and Blood: Morphologic and Serologic Studies. L. Berman, A. R. Axelrod, H. L. Goodman and R. I. McClaughry.—p. 403.
Air Turbine Hematocrit for Measurement of Relative Volume of Packed Red Cells. M. M. Strumia and L. A. Principato.—p. 419.
Spectrophotometric Method for Quantitating Hemoglobin in Plasma or Serum. F. T. Hunter, M. Grove-Rasmussen and L. Soutter.—p. 429.
Hemoglobin Content of Plasma of Banked Blood, and of Serum of Patients with Transfusion Reactions. M. Grove-Rasmussen and L. Soutter.—p. 434.
Measurement and Localization of Unknown Dose of Radioactive Iodine in Thyroid Tissue. E. De Amicis, K. H. Haley and R. F. Cowing.—p. 443.
Chemical Tests for Malignancy. M. M. Black and F. D. Speer.—p. 446.
Oral Treatment of Pernicious Anemia with Subminimal Doses of Folic Acid and Vitamin B12. L. M. Meyer, A. Sawitsky, N. D. Ritz and M. Krim.—p. 454.

Lupus Erythematosus Inclusion Phenomenon.—Results of morphologic blood and bone marrow examinations by Berman and co-workers demonstrated that presumptive morphologic evidence of acute lupus erythematosus can be obtained with ordinary laboratory methods. The characteristic phenomena in smears of centrifuged, heparinized, oxalated or citrated blood or marrow of the patients include the appearance of: (*a*) leukocytes containing ingested masses of cloudy structure, presumably mostly of nuclear origin, which show various degrees of alteration of density and staining reaction (LE cells); (*b*) free, nonphagocytized masses identical with those seen in LE cells, and (*c*) clusters of neutrophils about masses of cellular debris. An incidence of approximately 10 LE cells per 500 neutrophils in marrow smears is strong evidence in favor of a diagnosis of acute disseminated lupus erythematosus. Free cloudy masses and clusters may have a similar significance. The changes, which are characteristic of material from patients with acute disseminated lupus erythematosus, were not found in other forms of lupus erythematosus, in other diseases of the so-called collagen disease group or in unrelated conditions. A factor present in plasma from patients with acute lupus erythematosus (LE factor) and in the postmortem serum of patients who died of acute disseminated lupus erythematosus proved to be capable of provoking the LE phenomena in vitro on contact with suitably treated marrow from normal persons, from patients with various diseases and from various laboratory animals. The activity of LE plasma appeared to reside in the gamma globulin fraction. These observations can be utilized as the basis for a simple laboratory test of acute lupus erythematosus. Splenectomy had no effect on the occurrence of the LE phenomena in marrow smears from 1 patient with acute lupus erythematosus, nor was there any change in the activity of the LE factor, as observed in the in vitro reaction.

American Journal of Physiology, Baltimore

161:199-358 (May) 1950. **Partial Index**

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Electrokymography for Estimation of Heart Output: Comparison with Direct Fick in Dogs. G. C. Ring, E. M. Greisheimer, H. N. Baier and others.—p. 231.
Early Effects of Spinal Anesthesia and Surgery on Blood Volume in Man. L. S. Mann and S. I. Guest.—p. 239.
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Change of Vital Capacity with Assumption of Supine Position. W. J. Osher.—p. 352.

American Journal of Public Health, New York

40:513-658 (May) 1950. **Partial Index**

Home Accident Prevention: Panel Discussion. A. J. Chesley, E. G. Brown, H. L. Dunn and others.—p. 513.
*Q Fever in Wool and Hair Processing Plant. M. M. Sigel, T. F. McN. Scott, W. Henle and O. H. Janton.—p. 524.
Problem of Standardization of BCG Vaccine. J. D. Aronson and P. Schneider.—p. 533.
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Expectancy for Outbreaks of Poliomyelitis in Camps and Schools. T. H. Ingalls and A. D. Rubenstein.—p. 555.
Fly Control Techniques. J. H. Coffey and P. P. Naier.—p. 561.
What Does the School Physician See? R. W. Culbert and H. Jacobziner.—p. 567.
Clinical Audiology in Public Health and School Health Programs. W. G. Hardy.—p. 575.
Government in Industrial Health. J. G. Townsend.—p. 585.

Q Fever in a Wool and Hair Processing Plant.—Sigel and his associates report that on February 9, 1948 a man was admitted to a hospital in Philadelphia with a complaint of chills, fever, headache, cough, and pain in his back and left chest.

Serum specimens submitted to the Virus Diagnostic Research Laboratory suggested a tentative diagnosis of Q fever. Another serum was obtained on May 13, 1948, whose complement fixation titer with the Q fever antigen was 1:256. Thus, a definite diagnosis of Q fever was established. The patient was employed by a wool processing company in Philadelphia. It was established that during the first 3 months of 1948, about 30 employees of this company had been away from work because of a respiratory illness. One hundred and fifty-two of 186 employees were bled and the serums were tested with the antigens of Q fever. Sixty-seven of these serums gave positive reactions ranging in titer from 1:2 to 1:2,048; 39 of the serums had titers of 1:64 or higher. This was considered as an indirect evidence that a large number of the employees had had contact with Coxiella burnetii. Apparently, the outbreak of illness in this plant in the winter of 1948 was due to the rickettsia of Q fever. The authors recommend that Q fever antigen be used along with the other available antigens of pneumotropic viruses in testing serums of all cases of atypical pneumonia and undifferentiated infections of the upper respiratory tract. The handling of new wool and goat hair must be added to the list of occupations (dairy, meat, stock handling) that involve a risk of acquiring Q fever.

Archives of Dermatology and Syphilology, Chicago

61:887-1070 (June) 1950

SYMPOSIUM ON LUPUS ERYTHEMATOSUS: INCLUDING RECENT DEVELOPMENTS IN DIAGNOSIS AND TREATMENT

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Action of Cortisone on Mesenchymal Tissues. C. M. Plotz, E. L. Howes, J. W. Blunt and others.—p. 919.
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Resin of Podophyllium in Treatment of Cancerous and Precancerous Conditions of Skin: Effect on Basal Cell Epithelioma and Seborrheic, Senile and Radiation Keratosis. L. M. Smith and H. D. Garrett.—p. 946.
Eosinophilic Granuloma: Unusual Case with Involvement of Skin, Lungs and Kidneys. P. Adams and J. E. Kraus.—p. 957.
Allergic Eczematous Reactions of Nail Bed Due to "Under Coats." C. R. Rein and J. R. Rogin.—p. 971.
*Favorable Effect of High Altitude on American Cutaneous Leishmaniasis and Leprosy. F. R. Schmidt.—p. 984.
Yeastlike Dematiaceous Fungi Infecting Human Skin: Special Reference to So-Called Hormiscium Dermatitidis. A. L. Carrión.—p. 996.
Histopathology of Nodose Lesion of Acute Coccidioidomycosis. L. H. Winer.—p. 1010.
Benign Non-Nevoid Melanoepithelioma of Skin (Bloch). E. F. Traub.—p. 1025.

Effect of High Altitude on Cutaneous Leishmaniasis and Leprosy.—Schmidt says that in South America there are two well recognized types of cutaneous leishmaniasis. Uta occurs in the high arid valleys of Andes at altitudes of 3,000 to 8,000 feet (914 to 2,438 meters). This form of the disease resembles the oriental sore, is benign and usually heals within one year. Mucocutaneous leishmaniasis, or espundia, as it is known in Peru, is found in the moist tropical regions. Twenty per cent of these patients later acquire ulcerating and mutilating lesions in the mouth and nose. Involvement of the ears produces the characteristic mutilation known as "chicle sapper's ears." In a man with this disease who was transported from his home in the hot, humid lowlands to La Paz, Bolivia, which is at an altitude of 11,000 feet (3,353 meters), an ulcer rapidly healed with a minimum amount of treatment with antimony potassium tartrate. Patients with the lepromatous form of leprosy who are transported from the lowlands to La Paz exhibit a similar although slower regression of the disease. These observations are in accord with observations made by Strong in India and China. At low altitudes, with a hot, humid climate, Leishmania and Mycobacterium leprae apparently produce severe visceral and cutaneous symptoms, but at high elevations the diseases caused by these organisms run a decidedly milder course. The author believes that the explanation for this difference lies not so much in the reaction of the tissues of the patient to high altitude, but in the altered biochemical status of the invading parasite. Soule and McKinley studied the influence of varying amounts of carbon dioxide and oxygen on the growth of Myco. leprae. They found that the organism developed optimally when the atmosphere surrounding the culture contained 10 per cent of carbon dioxide and 40 per cent of oxygen. When the oxygen content was reduced to 20 per cent, conditions for the development of the bacillus were much less favorable. The organism lost its ability to reproduce, as well as its acid fastness. This is a preliminary report which suggests that the favorable effect of high altitude may be artificially reproduced in patients with these diseases. Such a treatment rests on the production of a lowered oxygen tension of the blood. This physicochemical status appears to be inimical to the vitality of Leishmania and Myco. leprae.

Archives of Internal Medicine, Chicago

85:893-1012 (June) 1950

*Aspiration Biopsy of Bone Marrow as Aid in Diagnosis of Histoplasmosis: Report of Case. P. T. Pratt, S. O. Schwartz and L. Ehrlich.—p. 893.
*Syndrome Characterized by Glomerulonephritis and Arthritis: Libman-Sacks Disease with Predominantly Renal Involvement. G. W. Daugherty and A. H. Baggenstoss.—p. 900.
Mixed Meningitis: Case of Combined Pneumococcus and Klebsiella Meningitis with Recovery. J. J. Conn and O. F. Rosenow.—p. 924.
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Anomalies of Coronary Arteries: Report of 2 Cases, with Comment on Dynamics of Development of Coronary Circulation. F. R. Dutra.—p. 955.
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Intravenous Administration of Tetracaine (Pontocaine®) Hydrochloride: Preliminary Report. J. S. Horan.—p. 972.
Fatty Change and Cirrhosis of Liver in Patients with Pancreatic Lithiasis. S. Sanes, D. K. Miller, F. W. Brason and O. B. Geist.—p. 980.

Bone Marrow in Diagnosis of Histoplasmosis.—According to Pratt and his associates the protean manifestations of histoplasmosis make diagnosis difficult, and neither in vivo (skin) nor in vitro (precipitin) tests are completely satisfactory for diagnosis. The demonstration of Histoplasma capsulatum is necessary before the diagnosis can be accepted. Recent observations, including the case reported here, suggest that the marrow is of diagnostic value. A man aged 70 presented many of the typical signs of this atypical disease. The unexplained anemia and leukopenia prompted the marrow examination, which revealed a great increase in histiocytes, many of which contained up to twenty organisms in their cytoplasm. These were identified as H. capsulatum. A review of the peripheral blood films also revealed the fungus in the cytoplasm of an occasional monocyte. Marrow was obtained for culture, and the tuberculate chlamydospores of H. capsulatum were demonstrated on Littman's medium. The fungus was also readily grown from the blood in brain broth. The patient was treated with penicillin and multiple vitamin preparations. In spite of the administration of penicillin, the temperature fluctuated between normal and 102 F. Because of the finding of the pernicious anemia type of red and white blood cells in the marrow, he was also given liver extract parenterally on September 2, but he died on September 3. Aspiration biopsy of the marrow promises to become an important diagnostic aid in suspected cases of histoplasmosis.

Libman-Sacks Disease with Renal Involvement.—Daugherty and Baggenstoss present the histories of 7 patients whose clinical courses and terminal pictures seem to constitute a definite, recognizable syndrome. The features these patients

exhibited in common were arthritis of varying duration, the subsequent development of albuminuria of rather pronounced degree, nephrotic edema, subsequent renal insufficiency and a fatal outcome with a subacute type of glomerulonephritis. The arthritis was the initially recognizable feature. It was nonspecific in nature and was characterized by pain, tenderness, stiffness, redness and swelling of the small-sized and medium-sized joints. These symptoms were migratory, of mild or moderate intensity and transient. They disappeared without leaving permanent damage. In this stage no definite diagnosis could be made, and the condition was considered to be symptomatic rheumatism. The first evidence of a renal disorder was albuminuria. This was generally associated with the presence of a few casts, erythrocytes and leukocytes in the urinary sediment. The subsequent onset of nephrotic edema, with decreased values for serum albumin and elevated values for plasma cholesterol, was then followed in a few weeks to a few months by the development of severe, rapidly progressive renal insufficiency. In the 4 cases in which necropsy was performed, the observations were those of subacute glomerulonephritis in 3 and of chronic glomerulonephritis in 1. The authors believe that these cases represent a group in which the underlying pathologic features are similar to those of Libman-Sacks disease or of lupus erythematosus. The syndrome is characterized by arthritic and periarthritic manifestations, followed by a diffuse generalized disease in which glomerulonephritis with the nephrotic syndrome is the central theme. In all instances the outcome has been rapidly fatal once the nephrotic picture has become manifest. The pathologic and bacteriologic studies failed to reveal a specific bacterial or virus agent. These observations suggest, but do not permit the conclusion, that a hyperergic state may be an important factor in the Libman-Sacks syndrome.

Archives of Otolaryngology, Chicago

51:781-948 (June) 1950

*Histamine in Treatment of Certain Types of Headache and Vertigo Following Fenestration Operation. G. E. Shambaugh Jr.—p. 781.
Use of Speech Tests for Evaluation of Clinical Procedures. S. R. Silverman.—p. 786.
Clinical Application of Bone Conduction Audiometry. R. Carhart.—p. 798.
Masking and Shadow Hearing in Bone Conduction. M. Saltzman and M. S. Ersner.—p. 809.
Hoarseness in Children. J. M. Loré Jr.—p. 814.
Streptomycin in Treatment of Tuberculous Otitis Media: Evaluation. L. L. Titche.—p. 826.
Diagnosis of Intracranial Lesions by Vestibular Tests. F. G. Santamarina.—p. 831.
Histologic Picture of Inherited Nerve Deafness in Man and Animals. F. Altmann.—p. 852.
Transantral Approach for Excision of Sphenopalatine Ganglion for Intractable Facial Pain. D. L. Poe.—p. 891.
Otosclerosis: Résumé of Literature with Clinical Observations. V. S. Subramanian.—p. 901.
Thrombosis of Cavernous Sinus. W. P. Pirkey.—p. 917.

Histamine Following Fenestration Operation.—Shambaugh administered histamine to patients after the fenestration operation for the relief of dizziness, tinnitus, a sense of fulness in the ear, a depression in hearing and pain which occur not infrequently months or years after a fenestration operation in the affected ear. This syndrome closely resembles and probably is a labyrinthine hydrops. Shambaugh has given minute doses of histamine in 703 cases of fenestration, comprising about one third of all his fenestration cases. In 333 cases the results of therapy were inconclusive, owing to incomplete records; in 370 the results were definite, the symptoms being improved or relieved immediately or within a few days in 225 (61 per cent) and not improved in 145 (39 per cent). The effective dose of histamine was oftenest 0.1 cc. of $1:10^8$ dilution by subcutaneous injection, but in a few cases this dose aggravated the symptoms and the effective dose was 0.1 cc. of $1:10^9$; in others it was 0.1 cc. of a $1:10^7$ or $1:10^6$ dilution. As a rule, if histamine is going to help, the relief from symptoms is definite after the first injection. Occasionally a single injection suffices. It is suggested that local sensitization of the otic labyrinth to histamine may cause the symptoms and that injections of minute doses of histamine may serve to desensitize the labyrinth.

Bulletin New York Academy of Medicine, New York

26:361-434 (June) 1950

SYMPOSIUM ON INHALATIONAL THERAPY

Origins and Effects of Anoxia. V. H. Moon.—p. 361.
Treatment of Anoxia in Clinical Medicine. A. LeR. Barach.—p. 370.
Cardiac Failure. D. W. Richards Jr.—p. 384.
Oxygen in Cardiac Infarction. R. L. Levy.—p. 394.
Anoxic Effects on Electrocardiogram Produced by 2-Step Test. A. M. Master.—p. 401.
Inhalational and Aerosol Therapy in Pneumonia. M. Block.—p. 404.
Pressure Breathing with Oxygen and Helium Oxygen in Pulmonary Edema and Obstructive Dyspnea. H. A. Bickerman and G. J. Beck.—p. 410.
Aerosol Therapy in Sinusitis, Bronchiectasis and Lung Abscess. C. Eastlake Jr.—p. 423.
Continued Use of Oxygen for Premature Infants. C. A. Smith.—p. 430.

California Medicine, San Francisco

72:405-478 (June) 1950

Effects of Cortisone and Adrenocorticotropic Hormone (ACTH) on Certain Rheumatic Diseases. E. W. Boland.—p. 405.
Anuria and Oliguria: Review of Symptoms, Pathologic Physiology and Mortality Rates. Part I. J. J. Hopper Jr. and J. W. Partridge.—p. 415.
*Use of Male California Toad in Diagnosis of Pregnancy. D. A. Johnson.—p. 422.
Chloramphenicol in Treatment of Typhoid Fever. L. Rosove, J. S. Chudnoff and A. G. Bower.—p. 425.
Cardiac Catheterization in Adult Congenital Heart Disease: Preliminary Report. G. C. Griffith, R. S. Cosby and D. C. Levinson.—p. 431.
Habitual Abortion. R. C. Benson.—p. 442.
Skeletal Suspension in Treatment of Decubiti. A. G. Clark.—p. 447.
Detection of Pulmonary Tuberculosis: Comparative Value of Routine Radiologic Examinations and Routine Laboratory Procedures. H. D. Peabody Jr. and R. H. Sundberg.—p. 450.
Simple Infant Transfusion Kit for Occasional Use. W. R. MacLaren.—p. 453.
Psychiatric Problems in Children: Part II. S. A. Szurek.—p. 454.
Epinephrine Hand Nebulizer in Asthma: Technique of Use, Clinical Aspects. A. M. Targow.—p. 461.

Use of Male Toad for Diagnosis of Pregnancy.—Johnson used the California male toad (Bufo boreas halophilus) in 237 pregnancy tests. He injects from 5 to 10 cc. of the morning urine subcutaneously into the dorsal lymph sac of each of a pair of male toads. One hour later fluid is withdrawn by means of a pipet from the external cloacal orifice. If microscopic examination reveals spermatozoa, the reaction is positive. A negative reaction is reported when no sperm is seen during a three hour period of observation after inoculation with the test urine. There were only two false negative reactions. Subsequent tests in both these cases were positive.

Geriatrics, Minneapolis

5:121-176 (May-June) 1950

Musculoskeletal Inadequacy and Failure in the Aged. O. Steinbrocker, S. Schwartz, S. Sverdlik and B. M. Bernstein.—p. 121.
Unipolar Precordial and Limb Lead Electrocardiograms in the Aged. P. H. Wosika, E. Feldman, E. J. Chesrow and G. B. Myers.—p. 131.
Treatment of Leukoplakia and Kraurosis Vulvae. C. L. Buxton.—p. 142.
Group Psychotherapy with Senile Psychotic Patients. A. Silver.—p. 147.
Hormonal Therapy in the Aging. T. H. McGavack.—p. 151.
Treatment of Indolent Ulcers of Skin. L. Feldman.—p. 159.

Journal of Applied Physiology, Washington, D. C.

2:481-530 (March) 1950

Metabolic Efficiency of Exercise in Relation to Work Load at Constant Speed. F. M. Henry and J. Demoor.—p. 481.
Influence of Age, Sex, Physique and Muscular Development on Physical Fitness. H. Cullumbine, S. W. Bibile, T. W. Wikramanayake and R. S. Watson.—p. 488.
Evidence for Adrenergic Sweating in Man. H. Haimovici.—p. 512.
*Determination of Renal Clearance of Radioiodine. J. Berkson, F. R. Keating Jr., M. H. Power and W. M. McConahey.—p. 522.

Renal Clearance of Radioiodine.—Berkson and his co-workers describe the parametric method that they used for the determination of renal clearance of radioiodine (I^{131}) in 40 persons, including euthyroid, hyperthyroid and hypothyroid cases. For each of these the clearance was also calculated directly by observing the rate of excretion into the urine during a period of time, and dividing this quantity by the blood concentration during that period. The comparison of the values of clearance as estimated by the two methods, for these cases, revealed that the agreement is usually, but not always, close.

This gives support to the general soundness of the method used. Thus the complicated dynamics of the metabolism of radioiodine can, at least in some circumstances, be formulated in a simple mathematical method. Since the parametric determinations embrace a series of observations which have been graduated, while the ad hoc procedure uses only a portion of these, the parametric determinations are to be considered better than the direct determinations.

Journal of Nat. Cancer Inst., Washington, D. C.

10:809-1004 (Feb.) 1950. **Partial Index**

Biotherapeutic Action of Trypanosoma Cruzi on Tar Carcinoma in Mice. G. C. Jedeloo, G. O. E. Lignac, A. J. Ligtenberg and P. H. van Thiel.—p. 809.
Inhibition of Mammary-Gland Development and Mammary-Tumor Formation in Female C 3 H Mice Following Ingestion of Thiouracil. C. S. Dubnik, H. P. Morris and A. J. Dalton.—p. 815.
Effect of Ultrasonic Vibration on Formed Elements of Blood from Normal and Leukemic Subjects. P. L. Morrow, H. R. Bierman and R. Jenkins.—p. 843.
Mammary Tumor-Agent in Sperm of High-Cancer-Strain Male Mice. O. Muhlbock.—p. 861.
Production of Malignancy in Vitro: IX. Description of Cells at Fluid Interface of Culture. W. R. Earle, E. L. Schilling and E. Shelton.—p. 865.
Use of Perforated Cellophane Substrate in Slide Preparation of Tissue Cultures. E. L. Schilling, W. R. Earle and V. J. Evans.—p. 883.
Response of Mammary-Tumor-Agent-Free Strain DBA Female Mice to Percutaneous Application of Methylcholanthrene. H. B. Andervont and T. B. Dunn.—p. 895.
Induction of Hemangio-Endotheliomas and Sarcomas in Mice with O-Aminoazotoluene. H. B. Andervont.—p. 927.
Intracellular Distribution of Enzymes. W. C. Schneider and G. H. Hogeboom.—p. 969.
Mucolytic Enzyme Systems: XII. Hyaluronidase in Human and Animal Tumors, and Further Studies on Serum Hyaluronidase Inhibitor in Human Cancer. L. B. Kiriluk, A. J. Kremen and D. Glick.—p. 993.

Journal of Nervous and Mental Disease, New York

111:271-358 (April) 1950

New Method of Treatment of Affective Psychoses and Psychoses with Depressive Features (Intravenous Injection of Ether by Drip Method): Preliminary Report. A. Ferraro, L. Roizin, P. Carone and N. E. Stein.—p. 271.
Autistic Thought: Its Formal Mechanisms and Its Relationship to Schizophrenia. S. Arieti.—p. 288.
Psychological Observations on "Doodling" in Neurotics. J. G. Auerbach.—p. 304.

Journal of Neurophysiology, Springfield, Ill.

13:189-264 (May) 1950. **Partial Index**

Central Auditory Pathway. H. W. Ades and J. M. Brookhart.—p. 189.
Stimulation and Strychninization of Supracallosal Anterior Cingulate Gyrus. R. H. Dunsmore and M. A. Lennox.—p. 207.
Corticocortical Connections of Posterior Wall of Central Sulcus in Monkey (Macaca Mulatta). O. Sugar, L. V. Amador and B. Griponissiotis.—p. 229.
Repetitive Discharges of Corticothalamic Reverberating Circuit. Haiang-Tung Chang.—p. 235.
Effect of Bulbar Facilitation and Inhibition on Peripheral Reflex Inhibition. L. M. N. Bach.—p. 259.

Journal of Nutrition, Philadelphia

41:1-172 (May) 1950. **Partial Index**

Effects of Dietary Composition on Tooth Decay in Albino Rat. J. H. Shaw.—p. 13.
Niacin Deficiency and Enteritis in Growing Pigs. W. Burroughs, B. H. Edington, W. L. Robison and R. M. Bethke.—p. 51.
*Enamel Erosive Properties of Fruits and Fruit Juices. C. D. Miller.—p. 63.
Vitamin B_{12} Concentrates in Nutrition of Mature Domestic Fowl. O. Olcese, J. R. Couch and C. M. Lyman.—p. 73.
Amino Acid Imbalance and Growth Requirements for Lysine and Methionine. C. R. Grau and M. Kamei.—p. 89.
Interrelationships of Thiamine and Fat in Nutrition of Rat. M. M. Krider and N. B. Guerrant.—p. 115.
Thiamine Requirement of Adult Rat and Influence on It of Low Environmental Temperature. D. M. Hegsted and G. S. McPhee.—p. 127.
Calcium Retained from One Level of Intake by 6 Adolescent Girls. F. A. Johnston, D. Schlaphoff and T. McMillan.—p. 137.

Enamel Erosive Properties of Fruits and Fruit Juices.—Miller points out that a number of investigators have shown that acid beverages, natural or synthetic, when fed to rats cause destruction of the lingual enamel of the molar teeth. Miller compared the enamel erosive properties of fruits with those of the juices made from them. He fed tropical and semitropical fruits—grapefruit, guava, Java plum, mango and pineapple—and juices prepared from them to standard rats to determine their enamel erosive properties. Quantities of juice equivalent to the daily fruit supplement had three to ten times the enamel erosive properties of the fruits themselves. No adequate explanation for the different effect of fruit and fruit juice can be offered at the present time, but it appears not to be related to the titratable acidity of the two. Data given for five fruits of widely different species and preliminary experiments with two other fruits appear to justify the postulate that acid fruits generally have a slight enamel erosive effect, in contrast to the decided effect of the juices made from them.

Journal of Pediatrics, St. Louis

36:539-686 (May) 1950

Sulfonamide Dosage in Early Infancy. J. B. Richmond, H. Kravitz and W. E. Segar.—p. 539.
Cystic Tuberculosis of Bone Complicated by Tuberculous Meningitis. E. R. Kutz, S. H. Macht and R. S. Easton.—p. 550.
Pseudohypoparathyroid Tetany. H. Bakwin, W. F. Gorman and S. R. Ziegra.—p. 567.
Electroencephalographic Findings in Measles Encephalitis. H. L. Hodes and S. Livingston.—p. 577.
Study of Q-Tc Interval in Electrocardiogram in Rheumatic Fever. N. Epstein and J. D. Gardam.—p. 583.
Naturally Fortified Milk Modifier: I. Laboratory Studies of Apple Syrup as Carbohydrate for Infant Feeding. B. Spur, S. Bushong and I. J. Wolman.—p. 588.
Id.: II. Clinical Studies of Apple Syrup as Carbohydrate for Infant Feeding. I. J. Wolman, B. Dickstein, J. A. Jones and others.—p. 594.
Congenital Arteriovenous Fistula of Cervical Vertebral Vessels with Heart Failure in Infant. J. A. Norman, K. W. Schmidt and J. B. Grow.—p. 498.
Periarteritis Nodosa Associated with Ratbite Fever Due to Streptobacillus Moniliformis (Erythemia Arthriticum Epidemicum). M. Prouty and E. L. Schafer.—p. 605.
Use of Pertussis Agglutinogen Skin Test During Active Infection with Whooping Cough. J. L. Kohn, L. W. Wannamaker, S. R. Kaplan and K. S. Shepard.—p. 614.
Ossification of Metacarpal and Metatarsal Centers as Measure of Maturation. D. H. Milman and H. Bakwin.—p. 617.
Sickle-Cell Anemia in Young Infants: Report of 2 Cases. G. E. Black.—p. 621.
Congenital Malformations with Severe Damage to Central Nervous System Due to Early Fetal Virus Infection. L. Lande.—p. 625.
*Reactivation of Rheumatic Fever by Smallpox Vaccination. P. Freud, G. D. Rook and A. Brunhofer.—p. 635.

Reactivation of Rheumatic Fever by Smallpox Vaccination.—Freud and his associates say that when several cases of smallpox occurred in New York City during April 1947 a large percentage of the population was revaccinated, including practically all children who had not been vaccinated for two or three years. Among the children of the pediatric service at Metropolitan Hospital there were 5 with rheumatic fever. In 2 there were definite signs of reactivation of the rheumatic fever after smallpox vaccination, and in 2 others there was some doubt as to the sequence of events leading to recurrence. The fifth case showed no reactivation. Of 6 patients with rheumatic fever whom the authors observed outside of the hospital, the infection became active in 2 after vaccination, while the 4 others showed no detrimental effects. A review of the literature gave no information regarding the possible relationship of smallpox vaccination to rheumatic fever, except that one author observed 2 and possibly 3 patients with inactive rheumatic fever in whom chorea developed shortly after they were vaccinated against smallpox. Reactivation of rheumatic fever by the injection of typhoid vaccine has been reported, and contradictory reports have appeared about the influence of vaccination on the course of tuberculosis. The authors point out that allergic manifestations such as purpura and urticaria frequently follow smallpox vaccination. Whether the reactivation of rheumatic fever is an allergic manifestation or whether it is a consequence of secondary infection at the site of vaccination requires further investigation.

Journal Pharmacology & Exper. Therap., Baltimore

98:1-226 (April) [Part II] 1950

Pharmacology and Toxicology of Antibiotics. H. Molitor and O. E. Graessle.—p. 1.
Ganglionic Blocking Agent. G. K. Moe and W. A. Freyburger.—p. 61.
Pharmacology of Neuromuscular Junction. C. C. Hung and S. W. Kuffler.—p. 96.
Theories of General Anesthesia. T. C. Butler.—p. 121.
Mechanism of Action and Therapeutic Use of Diuretics. R. F. Pitts and O. W. Sartorius.—p. 161.

Journal of Thoracic Surgery, St. Louis

19:655-820 (May) 1950. **Partial Index**

*Pulmonary Resection for Metastatic Malignant Lesions. H. H. Seiler, O. T. Clagett and J. R. McDonald.—p. 655.
Bronchogenic Carcinoma. F. J. Phillips, C. E. Basinger and W. E. Adams.—p. 680.
Management of Chylothorax. R. H. Meade Jr., J. R. Head and C. W. Moen.—p. 709.
*Surgical Treatment of Round Tuberculous Pulmonary Lesions (Tuberculomas). H. W. Mahon and J. H. Forsee.—p. 724.
Transthoracic Thyroidectomy. H. D. Adams.—p. 741.
Mesothelial Mediastinal Cysts: Pericardial Celomic Cysts of Lambert. E. C. Drash and H. J. Hyer.—p. 755.
Intercostal Incision in Transpleural Operations. J. A. Weinberg and A. R. Kraus.—p. 769.
Pericardial Celomic Cyst, with Symptoms: Case Report. W. H. Kisner and J. C. Reganis.—p. 779.
Pleural Mesothelioma: Further Evidence of Its Histogenesis. M. E. Sano, E. Weiss and E. S. Gault.—p. 783.
Arteriovenous Fistula of Lung, with Report of Case. J. Carswell Jr. —p. 789.
Plasma Cell Tumors of Mediastinum and Lung: Report of Two Cases. W. G. Childress and G. C. Adie.—p. 794.
Leiomyoma of Esophagus. R. A. Daniel Jr. and R. B. Williams Jr. —p. 800.
Leiomyoma of Lung. R. B. Williams Jr. and R. A. Daniel Jr.—p. 806.
Apparently Congenital Bronchoesophageal Fistula Persistent to Adult Life. D. R. Morton, J. F. Osborne and K. P. Klassen.—p. 811.
New Method of Automatic Controlled Respiration. M. H. Adelman, R. A. Berman and A. S. W. Touroff.—p. 817.

Pulmonary Resection for Metastatic Malignant Lesions.—Seiler and his co-workers assemble data on 62 cases in which pulmonary resection was done for metastatic malignant lesions. They present the case histories of 10 of these patients who were operated on at the Mayo Clinic. The primary tumor was sarcoma in 18 and carcinoma in 39 of the 57 cases in which the type of primary tumor was mentioned. The most frequent primary tumors were carcinoma of the large bowel, hypernephroma, fibrosarcoma, and carcinoma of the ovary. The intervals between removal of the primary tumor and appearance of the lesion in the lung ranged from zero to forty years. A longer interval did not noticeably improve the prognosis. The type of operation performed did not greatly influence the survival rate, but lobectomy or segmental resection is probably the procedure of choice when possible. The operative mortality rate was 10 per cent. Twenty-three patients out of 62 were living and well at the time reported on. Two of these 23 had survived ten years or longer, and 7 more had survived for periods ranging from three to ten years. The remaining 14 patients had been living and well for periods varying from several months to two years after resection. Pulmonary resection for metastatic malignant lesions occasionally seemed to be justified for the prolongation of life and the degree of comfort afforded the patient. The surgical excision of solitary, metastatic, malignant lesions of the lung is indicated in certain cases in which the primary tumor apparently has been completely removed and in which there is no evidence of further metastatic spread.

Round Tuberculous Pulmonary Lesions (Tuberculomas).—Mahon and Forsee present observations on 48 cases of round tuberculous pulmonary lesions, usually designated as tuberculoma. In three fourths of the cases the lesion was discovered accidentally by routine chest roentgenograms, taken in the course of examinations for annual physical check-up, for physical clearance previous to separation from or reenlistment in the armed service, or during screening on admission to hospital for some other condition. Three fifths of the tuberculous round lesions were well-developed when first observed. The others were followed by serial roentgenograms for several years. Streptomycin has no effect on the nodule. From assays on encapsulated lesions it appears that streptomycin does not penetrate their fibrous wall. They are potentially dangerous. They may persist for years apparently unchanged and then cavitate, break their fibrous barrier with a resulting acute tuberculous pneumonic flare-up. Fortunately these lesions are peripheral, subpleural, with few or no adhesions to the parietal pleura. Palpation of the lung usually can detect the extent of the main nodule and the presence of satellite or additional nodules. A wedge excision is sufficient for the mature fibrocalcific tuberculoma. A segmental or total lobectomy may be necessary where the area involved is too extensive for a wedge resection. Enucleation is to be avoided due to the possible presence of microscopic tubercles in the adjacent parenchyma. In this series wedge resection was employed in 30 cases, segmental resection in 2, and lobectomy in sixteen. In 1 case the tuberculoma was located along the line of an incomplete minor fissure and the removal of the upper and middle lobes was necessary. The danger of postoperative tuberculous pleuritis is slight. The comparative safety of the operative removal of these nodules is reflected by the facts that there were no operative deaths, no postoperative tuberculous pleurisy and no immediate postoperative disseminations.

Maine Medical Association Journal, Portland

41:123-166 (May) 1950

Antihistaminic Agents—Their Actions and Reactions. E. A. Brown. —p. 123.
Surgery in the Diabetic. J. Fine.—p. 129.
Explosive Hazard in Operating Room. C. S. Dwyer and P. B. Thomas. —p. 131.
Treatment of Verrucae with Aureomycin. M. A. Vickers and R. J. Barrett Jr.—p. 133.
Pityrosporum Ovale—Cause of Blepharitis. C. S. Hickey.—p. 135.
Malrotation of Bowel: Report of Case. R. W. Belknap and R. C. Powell.—p. 138.
What Every Maine Doctor Should Know About Medical Aspects of Atomic Weapons and Atomic Warfare. Committee on Emergency Civilian Defense of Maine Medical Association.—p. 144.

Michigan State Medical Society Journal, Lansing

49:497-616 (May) 1950

*Lesser Known Uses of Thyroid Substance. R. C. Moehlig.—p. 533.
Some Clinical Uses of Endocrine Products in Gynecology. R. B. Kennedy.—p. 539.
Specificity of Vitamins—Their Proper Clinical Use. M. A. Blakenhorn.—p. 546.
Essentials in Psychotherapy. F. Alexander.—p. 549.
Art of Anesthesia. J. De Pree.—p. 552.
Impending Death Under Anesthesia. M. Thorek.—p. 555.
Ophthalmia Neonatorum. W. L. Benedict.—p. 560.
The Private Practitioner and Industrial Medicine. M. R. Burnell. —p. 566.
Avicenna—Philosopher and Genius, Teacher and Surgeon. H. A. Lichtwardt.—p. 568.
History of Circumcision. E. A. Hand.—p. 573.

Lesser Known Uses of Thyroid Substance.—Moehlig discusses the value of thyroid substance in conditions in which this medication is not commonly used. Certain cases of alopecia with loss of eyebrows, eyelashes, axillary, pubic and body hair respond to thyroid medication. Some of these patients have a degenerating type of goiter which reduces the amount of normal thyroid secretion and results in a minus metabolism. The thyroid should be removed in these patients and if this is done, the alopecia may be corrected without the use of thyroid substance. Vertigo and dizziness may also respond to treatment with thyroid substance, because hypothyroidism may show itself in the vestibular apparatus. Many adult myxedematous patients have disturbances in hearing; they complain of dizziness and usually have a low metabolic rate. The correction of the dizziness by the administration of thyroid is gratifying. Thyroid has been used for chronic headaches and some cases of true migraine have received benefit from thyroid. In children with chronic headaches, particularly where there is a familial history of migraine, thyroid has been shown to be of great benefit. Recurring conjunctivitis, especially when associated with hypothyroidism, may be favorably influenced by thyroid, and the same may hold true of corneal ulceration. Another condition in which thyroid has been found to be of benefit is in the chronic nasal cold. Persons who complain of dryness of the mouth due to lack of salivary gland secretion have been benefited by thyroid. Thyroid has been used successfully in recurrent swelling of the parotid gland. Thyroid has a place in the chronic constipation of hypothyroidism. Even in cases of Hirschsprung's disease or megacolon thyroid has been useful. One of the better known uses of thyroid is in habitual abortion. Still another important use of thyroid is in stimulating the pituitary gland. It is helpful in cases of amenorrhea, particularly those due to primary pituitary hypofunction. Thyroid has been found beneficial where diuresis is desired. Thyroid has found a place in the hypochromic type of anemia associated with hypothyroidism. Occasionally mental depression with melancholia has been helped by the administration of thyroid in ½ grain daily doses. In heart block and in cases of hypothyroidism with angina pectoris thyroid therapy may be of benefit. The author warns against the abuse of thyroid in obesity.

Minnesota Medicine, St. Paul

33:417-552 (May) 1950

Syphilitic Cardiac Deaths in Over 50,000 Autopsies. B. J. Clawson. —p. 437.
Review of 250 Necropsy Cases of Hypertensive Cardiovascular Disease. J. R. Householder.—p. 441.
Plans of Medical Students for Practice. M. M. Weaver and H. S. Diehl.—p. 446.
Challenging Problems and Demands of the Aged and Chronically Ill. J. A. Lepak.—p. 450.
Melanomata and Nevi. A. H. Wells.—p. 456.
Management of Pyodermas. J. F. Madden.—p. 462.

New England Journal of Medicine, Boston

242:737-768 (May 11) 1950

*Failure of Antihistaminic Drugs to Prevent or Cure Common Cold and Undifferentiated Respiratory Diseases. A. E. Feller, G. F. Badger, R. G. Hodges and others.—p. 737.
Solitary and Multiple Adenomatous Polyps of Gastrointestinal Tract. S. Mikal and A. J. Campbell.—p. 745.
Transmural Migration of Intestinal Bacteria: Study Based on Use of Radioactive Escherichia Coli. F. B. Schweinburg, A. M. Seligman and J. Fine.—p. 747.
Perforation of Gastric Ulcer Following Intensive Radiation Therapy. W. Feiring and M. L. Jampol.—p. 751.
Recent Advances in Roentgenographic Diagnosis of Congenital Malformation of Heart and Great Vessels. E. B. D. Neuhauser.—p. 753.

242:769-806 (May 18) 1950

Safe Management of Fractures. J. W. O'Meara.—p. 769.
Urologic Aspects of Radical Pelvic Surgery. L. Parsons and W. F. Leadbetter.—p. 774.
Pancreatic Carcinoma with Unusual Metastasis to Skin and Subcutaneous Tissue Simulating Cellulitis. J. M. Edelstein.—p. 779.
Failure of Chloramphenicol in Chronic Typhoid Carrier. H. B. Stryker Jr.—p. 782.
Clinical Usefulness of ACTH and Cortisone. G. W. Thorn, P. H. Forsham, T. F. Frawley and others.—p. 783.

242:807-848 (May 25) 1950

Clinical Study of Iodoacetate Index (Huggins Test) in Cancer and in Various Nonmalignant Pathologic Conditions. D. R. Gilligan, J. T. Rothwell and S. Warren.—p. 807.
Unusual Sensitivity Reaction to Penicillin: Report of Case with Autopsy Findings. R. M. Berne.—p. 814.
Union Health Department Act. A. Fiore.—p. 818.
Massive Ascites Due to Myxedema: Report of Case. F. K. Paddock. —p. 822.
Clinical Usefulness of ACTH and Cortisone (continued). G. W. Thorn, P. H. Forsham, T. F. Frawley and others.—p. 824.

Failure of Antihistaminic Drugs in Respiratory Diseases.—Feller and his co-workers investigated the value of antihistaminic drugs in the treatment and prevention of the common cold and undifferentiated respiratory diseases (1) by observation of the effect of the drugs in naturally occurring respiratory infections and (2) by determination of the influence of the drugs on the occurrence and subsequent course of common colds developing after the experimental inoculation of normal volunteers. In neither type of study have the drugs proved to be effective.

New York State Journal of Medicine, New York

50:1169-1312 (May 15) 1950

Psychologic Implications of Tonsillectomy. L. L. Coleman.—p. 1225.
Formation of Procaine Depot and Prolongation of Local Anesthesia by Injection of Insoluble Procaine Derivatives. S. Monash.—p. 1229.
Program for Active Rehabilitation of Cardiac Patient. S. H. May. —p. 1231.
Pregnancy Complicated by Diabetes. A. N. Frankel.—p. 1233.
Sulfadiazine and Sulfamerazine in Combined Sulfonamide Therapy. T. G. Kantor.—p. 1237.
Technic of Postnasal Packing for Uncontrollable Epistaxis with "Kite-Tail" Tampon. A. G. Favazza.—p. 1240.
Ambulatory Preparation for Thyroidectomy. H. R. Marcus, J. J. Vorzimer, A. H. Spivack and G. J. Friedman.—p. 1241.
Recurrent Meningitis and Cerebrospinal Rhinorrhea. M. Kleinfeld, M. Axelrod and A. Cohen.—p. 1244.
Incidence of Bronchial Asthma in General Practice. I. M. Kurtz.—p. 1247.
Variability of Blood Pressure Readings. A. D. Jonas.—p. 1249.
Treatment of Acute Herpetic Gingivostomatitis with Ozonide of Olive Oil. L. S. Goldstein.—p. 1252.
Role of Pressure in Long-Standing Nodular Goiters. A. H. Noehren. —p. 1253.
Chronic Disease Problem. H. F. Schwartz.—p. 1255.
Clinical Applications of Analgesic and Sedative Action of Subdamine. G. Nonas.—p. 1257.
Antihistaminic Drug in Prevention of Spinal Headache. T. R. Shannon. —p. 1259.

Northwest Medicine, Seattle

49:305-388 (May) 1950

Resume of Rheumatoid Arthritis. E. L. Turner.—p. 334.
Summary of Salmonella and Shigella of Alaska. R. B. Williams. —p. 340.
*New Concept of Cause of Hirschsprung's Disease or Congenital Megacolon, with New Method of Treatment by Surgery. A. H. Bill Jr. —p. 341.
Experiences with Needle Biopsy of Liver. J. D. Bonzer.—p. 345.
Meckel's Diverticulum. C. J. Ruth.—p. 350.
Abscess Complicating Plantar Wart. A. Bobroff.—p. 352.
Anaphylactic Shock from Chloromycetin. D. B. Patterson.—p. 352.
Malignant Aspects of Mediastinal Tumors. J. K. Poppe.—p. 353.

Hirschsprung's Disease: New Concept of Cause and Treatment.—Bill points out that for many years it was thought that Hirschsprung's disease or megacolon is essentially a problem of the enlarged portion of the colon. Some believed that there was a defect in the muscle wall of the enlarged bowel, while others thought that the difficulty lay in its nervous control. Another concept of the mechanism of this disease has been established recently. In 1945 and 1946 Neuhauser, of the Children's Hospital in Boston, found by fluoroscopic studies that there was a relative narrowing in the rectosigmoid area distal to the enlarged portion of colon. In order to show the narrowing in the rectosigmoid region by roentgenogram, Neuhauser demonstrated that the barium mixture must be instilled slowly, with the patient in the oblique or lateral position. The author describes a technic of combined abdominoperineal excision of the rectosigmoid, with preservation of the anal sphincter, as the most effective surgical treatment for Hirschsprung's disease. The author has employed this operation in 5 children with return of satisfactory bowel control in every case.

Ohio State Medical Journal, Columbus

46:413-524 (May) 1950

Present Concepts in Diagnosis and Treatment of Acute Pancreatitis. V. E. Siler and J. H. Wulsin.—p. 437.
Medical Treatment of Hyperinsulinism: With Report of Case. H. J. John.—p. 446.
New Modified Protamine Zinc Insulin (NPH-50). T. P. Sharkey and H. E. King.—p. 449.
Summer Camp for Diabetic Children. E. P. McCullagh, P. W. Russell and R. E. Schneckloth.—p. 452.
Control and Treatment of Brucellosis. J. A. Prior.—p. 455.
Early Recognition of Danger Signals During Anesthesia and Their Correction. R. J. Whitacre.—p. 459.

46:525-628 (June) 1950

Etiology and Rationale of Treatment of Common Bile Duct Pathology. H. V. Sharp.—p. 541.
Newer Antibiotics: Brief Review of Biological and Clinical Properties of Bacitracin, Polymyxin, Aureomycin, Chloromycetin and Neomycin. L. Weinstein.—p. 546.
Fibrositis and Segmental Neuralgia. J. M. Strong.—p. 554.
Cancer Mortality Falls. G. M. Wilcoxon.—p. 559.
Hysterectomy: Analysis of 225 Cases. J. F. Mohan.—p. 561.
The Public Views the Doctor: Basis for Criticisms Directed at Medical Profession Aired; How the Individual Physician Can Prevent These and Meet Existing Problems. R. W. Elwell.—p. 581.

Proc. Staff Meet. Mayo Clinic, Rochester, Minn.

25:265-304 (May 24) 1950

Concept of Starvation Edema. J. M. Berkman.—p. 265.
Calculation of Survival Rates for Cancer. J. Berkson and R. P. Gage. —p. 270.
Viral Hepatitis as Cause of Atrophy and Cirrhosis of Liver. R. F. Perkins, A. H. Baggenstoss and A. M. Snell.—p. 287.
*Prognosis of Chronic Hepatitis in Children. G. B. Logan.—p. 299.

Prognosis of Chronic Hepatitis in Children.—The group of patients investigated by Logan included all those children who had hepatic disease and were seen in the Section on Pediatrics of the Mayo Clinic during the past twenty-seven years. The only exception was 1 patient who was first seen in 1917. The cause of hepatic disease in this group was varied. A total of 74 children were investigated. Sufficient follow-up data are available to permit comment on 53 of these children. Forty-one, or approximately three fourths of the 53, died within five years after the onset of disease. One patient, however, lived for 23 years after the onset. Seven patients were still living six years after the onset of disease. The author gained the impression from the observation of some of these children that chronic hepatitis may be a reversible process. Before a definite

conclusion can be drawn in this respect, however, a longer period of observation is necessary. In some instances what have been considered reversible processes may, instead, represent instances of long latent periods.

Psychoanalytic Quarterly, Albany, N. Y.

19:145-294 (April) 1950

Psychodynamic Aspects of Epilepsy. G. Heilbrunn.—p. 145.
Physiological Systems and Emotional Development. L. J. Saul.—p. 158.
Mental Reactions in Patients with Neurological Disease. D. Beres and C. Brenner.—p. 170.

Review of Gastroenterology, New York

17:307-412 (May) 1950

Problem of Gallbladder Disease. A. F. R. Andresen.—p. 319.
Experientia Docet. A. E. B. Webb-Johnson.—p. 337.
Vagotomy: Experimental and Clinical Appraisal of Effect of Section of Vagus Nerves at Different Levels. M. Feldman and S. Morrison. —p. 344.
Surgical Repair of Femoral Hernia. N. C. Browder, I. Madoff, F. A. Kirby and J. W. Glenn.—p. 348.
Water-Soluble Chlorophyll in Treatment of Peptic Ulcers of Long Duration: Preliminary Report. W. G. Offenkrantz.—p. 359.
Corticodiencephalic Gastrointestinal Syndromes in Epileptics (Part V). T. S. P. Fitch, A. W. Pigott and S. M. Weingrow.—p. 368.

Southern Medical Journal, Birmingham, Ala.

43:469-564 (June) 1950

Early Manifestations and Radiologic Indications of Small Bowel Obstruction. C. J. Hunt.—p. 469.
Early Ambulation as Aid in Postoperative Management. E. T. Trice. —p. 475.
*Prolapse of Gastric Mucosa: Report of 22 Cases. H. G. Rudner.—p. 480.
Further Studies on Aspergillus Infections of Nails. E. S. Bereston. —p. 489.
Multiple Superficial Epitheliomatosis, with Special Reference to Treatment with Podophyllin. L. M. Smith and H. D. Garrett.—p. 493.
*Note on Effect of Pituitary Adrenocorticotropic Hormone (ACTH) and Cortisone in Ameliorating Symptoms of Leukemia and of Cortisone in Hodgkin's Disease. T. D. Spies, G. Garcia Lopez, F. Milanes and others.—p. 497.
Urinary Incontinence. A. A. Marchetti.—p. 502.
Endocrinology or "Endocriminology": Abuses of Endocrine Therapy. E. C. Hamblen.—p. 506.
Psychosomatic Aspects of Cardiovascular Disease. L. F. Bishop Jr. —p. 509.
Fractured Nose, Recent and Neglected. F. L. Bryant.—p. 513.
Medical Possibilities of Microwave Diathermy. G. M. Martin, J. W. Rae Jr. and F. H. Krusen.—p. 518.
Early Diagnosis of Cancer of Larynx. F. E. LeJeune.—p. 525.
Low Dosage Pituitary-Ovarian Irradiation in Secondary Amenorrhea and Associated Sterility. C. J. Collins.—p. 527.
Pregnancy Following Sterility. W. O. Johnson and J. B. Marshall. —p. 531.
Obstetrics for General Practitioner. F. E. Whitacre and I. D. Wiener. —p. 536.
Practical Considerations Concerning Fluid and Electrolyte Therapy. R. Lich Jr. and J. E. Maurer.—p. 542.
Early Ambulation in Surgery. J. C. Burch and H. T. Lavely Jr. —p. 549.
Management of Heart Disease in Steel Industry. W. H. Rice.—p. 553.

Prolapse of Gastric Mucosa.—Rudner believes that prolapse of the gastric mucosa deserves a special classification among gastric disorders because it is responsible for many symptoms heretofore attributed to atypical peptic ulcer and gastric neurosis. It may explain a number of cases wherein a diagnosis of duodenal ulcer, duodenitis, prepyloric ulcer or antral gastritis has been made. Apparently, the common etiologic factor in all prolapses of the gastric mucosa is an excessive peristalsis, and this seems to be initiated by essentially the same agents as those which give rise to duodenal ulcer. The fact that the condition, like duodenal ulcer, is more prevalent in men between the ages of 20 and 50 years also suggests a similar precipitating factor. Further, as the prolapse persists and progresses it becomes traumatized, leading to gastritis. The symptoms commonly consist of epigastric fulness and distention, heartburn and a colicky pain. As a rule, they begin half to one hour after meals and are relieved by vomiting, either spontaneous or induced. In some cases the pain may be accompanied with evidence of shock, as in coronary thrombosis. Between the attacks the patient may be entirely comfortable. If the prolapse is of mild or moderate degree, physical examination will be negative. In the presence of a more advanced or severe prolapse a soft, movable mass may be detected in the pyloric region. On palpation, however, the mass may disappear, being reduced into the stomach in the manner of a reducible hernia. Repeated fluoroscopic studies and numerous serial roentgenograms may be necessary, with the patient in the erect and in the supine position. On fluoroscopy, the contour of the defect may undergo constant change. The characteristic shadow is shaped like an open umbrella or mushroom projecting into the base of the duodenal bulb. Conservative treatment consists of diet, sedation, antispasmodics, rest, psychotherapy and the removal of stimulants. Patients with moderately severe prolapse should be hospitalized until its presence can be determined and a therapeutic regimen instituted. Those who continue to have acute epigastric pain, recurrent bleeding or evidence of pyloric obstruction despite the use of conservative measures should be treated surgically.

Pituitary Adrenocorticotropic Hormone and Cortisone in Leukemia and Hodgkin's Disease.—Eight patients with lymphatic leukemia were given either pituitary adrenocorticotropic hormone (ACTH) or synthetic cortisone acetate. The clinical and laboratory results were variable and unpredictable. Four of the 5 patients with acute leukemia were children 11 years and under; the other patient was a woman aged 63. Three of the children are still living and are much improved. One child died on the fifth day of treatment. The adult with acute leukemia had good clinical and hematologic improvement for three weeks, then she gradually grew worse and died. The three patients with chronic leukemia are all living. The one treated with pituitary adrenocorticotropic hormone showed great improvement. One of the patients treated with cortisone acetate likewise manifested great improvement, but the condition of the other patient so treated did not change. The patient with Hodgkin's disease displayed striking clinical improvement after the administration of cortisone acetate. These results, despite their variability, suggest that pituitary adrenocorticotropic hormone and synthetic cortisone acetate are promising tools for medical investigators studying leukemia. Perhaps leukemia is not a single disease but the result of a variety of causes. None of these patients had to live on borrowed blood while they were being treated. It seems clear that something within the tissues is still capable of exerting a beneficial effect on the patient when stimulated by pituitary adrenocorticotropic hormone or cortisone. Spies and co-workers have seen no patient whose blood-forming organs returned to normal. Hence, there is still no cure for leukemia.

Surgery, Gynecology and Obstetrics, Chicago

90:513-642 (May) 1950

*Carcinoma of Jejunum and Ileum Exclusive of Carcinoid Tumors. J. E. Pridgen, C. W. Mayo and M. B. Dockerty.—p. 513.
Appraisal of Operation of Anterior Resection for Carcinoma of Rectum and Rectosigmoid. J. H. Garlock and L. Ginzburg.—p. 525.
Hypertrophy of Pyloric Muscle in Adult: Experiences with Conservative and Radical Surgical Treatment. J. C. McCann and M. A. Dean. —p. 535.
Congenital Arteriovenous Fistulas in Mandible. R. C. Clay and A. Blalock.—p. 543.
*Management of Multiple Polyposis of Colon. R. W. Bartlett and M. E. Peck.—p. 547.
Osteotomy for Correction of Deformity in Marie-Struempell Arthritis. W. A. L. Thompson and R. E. Ingersoll.—p. 552.
Surgical Emergencies in Gynecology and Obstetrics. N. W. Philpott. —p. 557.
*Identification of Regional Lymph Nodes by Means of a Vital Staining Dye During Surgery of Gastric Cancer. J. Weinberg and E. M. Greaney.—p. 561.
Arterial Homografts: I. Fate of Preserved Aortic Grafts in Dog. H. Swan, H. T. Robertson and M. E. Johnson.—p. 568.
Note on Use of Pituitary Adrenocorticotropic Hormone (ACTH) and Estradiol Benzoate (Progynon B) in Treatment of Gingivitis Associated with Endocrine Imbalance. S. Dreizen, R. E. Stone and T. D. Spies.—p. 580.
Chloromycetin in Surgical Infections. W. A. Altemeier and J. Giuseffi. —p. 583.
Craniopharyngiomas (Pituitary Adamantinomas). J. G. Love and T. M. Marshall.—p. 591.
Primary Tumors of Cranial Bones. H. J. Vandenberg Jr. and B. L. Coley.—p. 602.
Complications of Late Pregnancy in Rabbits Induced by Experimental Placental Trauma. C. L. Schneider.—p. 613.
Surgical Considerations in Mobilizing Hepatic Flexure. R. V. Condon and R. A. Lamphier.—p. 623.

Carcinoma of Jejunum and Ileum.—Pridgen and his associates studied the files of the Mayo Clinic for cases in which diagnosis of carcinoma of the small intestine had been made. Several hundred cases were so listed from January 1907 to

June 1947. Carcinomas of the duodenum, carcinoids, metastatic lesions, leiomyosarcomas and lymphosarcomas were not included. The residual group comprised 63 cases in which the lesion was considered to be primary adenocarcinoma of the jejunum or of the ileum. Forty-four lesions were in the jejunum and 19 were in the ileum. The average age of the patients was 49.2 years. The two sexes were affected equally in the ileac series, while men were affected about twice as often as women in the jejunal group. There were three symptom complexes: the anemic, the obstructive and the perforative. Constipation, loss of weight, belching or the passing of flatus were frequent complaints. Visible peristalsis and palpation of an abdominal mass on physical examination were the two most important signs. Anemia, which appeared to be chiefly due to bleeding from the intestinal tract, was usually present. More than three fourths of the patients that were observed during the last five years were roentgenologically examined; these studies were diagnostic in over 90 per cent of the cases. The size of the tumor as well as the nodal involvement were generally directly related to the grade of the lesion. There were also several large high grade lesions with no nodal involvement, which lends support to the idea that tumors may be fundamentally of two types regardless of grade: those which spread by extension and those which spread by vascular routes. The number or size of the nodes seen at operation is not a reliable index to microscopic nodal involvement. Intussusception occurred five times and was usually found in the presence of a polypoid type of lesion. Perforation of the bowel wall was found in a third of the cases. Neoplastic involvement of the liver occurred six times, and distal metastasis was rare. Wide resection of the lesion with removal of the regional lymph nodes is the treatment of choice. A palliative short circuiting operation to divert the fecal stream around the growth is of value, if resection is impossible. The operative mortality rate for the entire series was 22 per cent. The absence of postoperative deaths in the 25 jejunal cases since 1935 and in the 6 ileac cases since 1939 demonstrates the importance of the improvement in preoperative and postoperative care and of chemotherapy. In general, the higher the grade of the lesion and the greater the percentage of nodal involvement, the worse is the prognosis. The average duration of life in the entire series was 32.2 months. The prognosis in cases of ileac lesion was slightly better than that in cases of jejunal lesion.

Multiple Polyposis of Colon.—Bartlett and Peck point out that multiple polyposis (adenomatosis) of the colon is a familial disease. It is almost invariably fatal if unrecognized, untreated or inadequately treated, since the development of carcinoma is practically certain without adequate treatment. The disease ordinarily manifests itself in the second, third or fourth decades and should be considered in the differential diagnosis of any condition producing diarrhea, mucus and blood in the stools. Sigmoidoscopic examination in combination with barium and air contrast enemas will usually establish the diagnosis. Treatment consists either of colectomy and ileosigmoidostomy (or ileoproctostomy), in combination with fulguration of polyps in the lower segment followed by periodic observation, or resection of the rectum and colon in combination with permanent ileostomy. The authors favor the latter plan, since fatal carcinomas have later appeared in the retained rectal or rectosigmoid segment. The skin-grafted ileostomy largely eliminates the horrors of the older type ileostomies and thus makes one less reluctant to sacrifice the rectum. The authors report on 3 cases of multiple polyposis in which surgical treatment was employed.

Identification of Regional Lymph Nodes by Means of Staining During Operation for Cancer.—Weinberg and Greaney developed a method of staining the regional lymph nodes during the surgical intervention for cancer of the stomach in order to make them more easily identifiable. Pontamine sky-blue in a 2 per cent aqueous solution was found to be the most satisfactory of the dyes the authors have experimented with for this purpose. It is taken up more or less specifically by the nodes and stains them sufficiently to make them easily distinguishable from the surrounding tissue in the course of the operation. Pharmacologic tests have shown the dye to be nontoxic. The authors were able to demonstrate stained nodes along the course of all of the major vessels which supply the stomach. Some of these, particularly the nodes in the region of the celiac axis and the lower part of the esophagus, would probably have been overlooked had they not been stained. Investigations with the dye are now under way in other viscera in which the spread of cancer is chiefly by way of the lymphatics. Although changes are being made to improve the technic, the method has already proved so useful that the authors have adopted it as a routine procedure in conjunction with the surgical attack on cancer showing a predilection for lymphatic extension.

Tennessee State Medical Assn. Journal, Nashville

43:145-184 (May) 1950

Resolution Concerning Medical and Hospital Care of Veterans with Non-service-Connected Disabilities by Committee on Veterans' Affairs of Tennessee State Medical Association. H. H. Shoulders, L. W. Edwards, K. C. Copenhaver and others.—p. 145.
North American Blastomycosis. D. J. Greiner.—p. 156.
Role of Cancer Detection Clinic in Cancer Problem. A. W. Diddle.—p. 160.
Safety Considerations in Therapeutic Use of Radioactive Substances. G. K. Schweitzer.—p. 164.
Radiological Aspects of Use of Phosphorous and Iodine. F. T. Rogers.—p. 167.
Clinical and Hematological Observations in Certain Diseases of Thyroid and in Cases of Polycythemia Vera. J. B. Ely.—p. 169.

Texas State Journal of Medicine, Fort Worth

46:281-344 (May) 1950

Intracranial Complications of Otogenic and Rhinogenic Disease. C. I. Johnson.—p. 287.
Acute Infectious Maxillary Sinusitis. H. I. Davis.—p. 292.
Chronic Suppurative Otitis Media and Mastoiditis Management. J. D. Singleton.—p. 295.
Foreign Bodies in Air and Food Passages: Observations on Series of 85 Cases. O. W. Suehs.—p. 298.
Practical Aids for Refractionist. M. Thomas.—p. 304.
Treatment of Myocardial Infarction. J. K. Norman.—p. 308.
*Dissecting Aneurysms of Aorta: Ten Year Study. J. A. Rider, J. W. Chriss and G. R. Herrmann.—p. 311.
Modern Concepts of Leprosy. J. A. Doull.—p. 315.
Anorectal Disease in General Practice. T. W. Hedrick.—p. 319.

Dissecting Aneurysm of Aorta.—Rider reviews observations on 19 patients who had 20 dissecting aneurysms. The patients were observed between 1938 and 1947, inclusive. Thirteen of the 19 patients were Negroes. This high proportion of Negroes differentiates this series from those previously reported; it may be entirely due to chance, but in the region from which this case material was derived, Negroes do much of the heavy labor and their dietary habits are more likely to contribute to nutritional deficiencies. It may be that either or both of these factors are of importance in the causation of the disease. The average age of Negroes was 58 and that of white persons was 59. The age range was 36 to 77 years, but 15 were 50 years old or older. There was a history or evidence of hypertension in all except 4 of the cases. The precipitating cause of the dissecting aneurysm could not be ascertained, except that in 1 patient it occurred during prefrontal lobotomy. Trauma and exertion have been considered possible causes. The survival period of patients with dissecting aneurysm is commonly short—a matter of hours to a few days. It appears that rupture into an arterial lumen is a factor which tends to prolong the survival period. Medionecrosis was present in 10 of 12 cases in which microscopic examination of the aorta was made. One of the patients had syphilitic aortitis with 2 individual healed dissections demonstrated at autopsy; 1 of these had been diagnosed clinically.

Wisconsin Medical Journal, Madison

49:349-448 (May) 1950

Study of Keloids and Related Conditions. W. Marshall and W. Schadeberg.—p. 369.
Analgesia and Anesthesia in Obstetrics. C. B. Lull.—p. 374.
Evisceration. A. M. Kohn and J. N. Briggs.—p. 377.
Experiences with Rh Hapten. J. W. Goldsmith.—p. 381.
Anticoagulant Therapy. O. O. Meyer.—p. 385.
Causes of Persistence of Symptoms Following Operation on Biliary Tract. C. B. Puestow.—p. 389.
Artificial Eardrum as an Effective Hearing Aid. A. Kovacs.—p. 391.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted.
Single case reports and trials of new drugs are usually omitted.

British Journal of Industrial Medicine, London

7:65-104 (April) 1950

Chronic Intoxication by Ethylene Glycol Vapour. F. M. Troisi. —p. 65.
Beryllium Granulomata in Lungs of Rats. T. A. L. Davies and H. E. Harding.—p. 70.
Dust Conditions at Selected Briquetting Works in South Wales. H. H. Watson.—p. 73.
Notes on Toxicology of Cobalt Metal. H. E. Harding.—p. 76.
Erythro-Leukaemic Myelosis in Benzine Poisoning. B. Galavotti and F. M. Troisi.—p. 79.
Possible Long Term Effects of Exposure to Sulphur Dioxide. A. Anderson.—p. 82.

British Medical Journal, London

1:1021-1094 (May 6) 1950

World Health Organization. B. Chisholm.—p. 1021.
Advisory Services of World Health Organization. M. M. Eliot.—p. 1027.
Origins of International Health Work. N. Howard-Jones.—p. 1032.
Therapeutic Substances in Their International Aspects. S. S. Sokhey. —p. 1037.
Medical Statistics and World Health. P. Stocks.—p. 1044.
International Control of Epidemics. Y. Biraud.—p. 1046.
World Health Organization Library. E. Wigmore.—p. 1050.

1:1095-1156 (May 13) 1950

A Half-Century's Experience in Diabetes Mellitus. E. P. Joslin. —p. 1095.
Procaine Penicillin: Choice of Preparation. R. W. Fairbrother and K. S. Daber.—p. 1098.
Food and Mankind. J. Yudkin.—p. 1101.
Intestinal Obstruction Due to Food. N. Ward-McQuaid.—p. 1106.
Intravenous Iron in Treatment of Anaemia. A. S. Ramsey.—p. 1109.
Respiratory Obstruction from Fractures of Jaw. H. J. Richards.—p. 1113.
Vesical Carcinoma with Bilharzia. E. R. Davies and I. S. Stewart. —p. 1114.
Acute Anthisan Poisoning: Report of Fatal Case. A. A. Miller and E. Pedley.—p. 1115.
Trichomonicidal Action of Dinaphthalene Methane Silver Disulphonate. C. R. Sluming.—p. 1116.

Journal of Clinical Pathology, London

3:87-190 (May) 1950. **Partial Index**

Techniques for Evaluation of Adrenal Cortical Function by Use of Adrenocorticotrophine: Review. F. T. G. Prunty.—p. 87.
Effect of Para-Amino-Salicylic Acid on Prothrombin Time. M. J. G. Lynch.—p. 114.
Dried Disc Technique for Determining Sensitivity to Antibiotics. B. A. Thompson.—p. 118.
Hypopituitarism in Male Due to Giant Cell Granuloma of Anterior Pituitary. M. H. Oelbaum and J. Wainwright.—p. 122.
Consumption of Prothrombin During Coagulation: Defect in Haemophilia and Thrombocytopenic Purpura. C. Merskey.—p. 130.
Urinary Excretion of Carbonic Anhydrase: Simple Test for Detection of Intravascular Haemolysis. J. R. Robinson.—p. 142.
*Identification of Barbiturate Drugs in Gastric Contents and Urine. J. G. Selwyn and F. A. Dark.—p. 152.

Identification of Barbiturates in Body Fluids.—Selwyn and Dark point out that, when patients are admitted to the hospital in a state of coma or semicoma, it is often essential to confirm or exclude poisoning with a barbiturate. Since the standard methods available for this purpose are time consuming, the authors evolved a more rapid method, which requires about three hours and is based on the following facts: 1. The barbiturate drugs, being derived from barbituric acid, are either the acid derivatives, e. g., diethylbarbituric acid (barbital), or their sodium salts, e. g., sodium diethylbarbiturate (barbital sodium). 2. When in aqueous solution they can be changed from one form to the other by making the p_H acid or alkaline. 3. The barbituric acid derivatives are only slightly soluble in water but are readily soluble in ether, whereas their sodium salts are readily soluble in water and are almost insoluble in ether. As part of any ingested barbituric acid is excreted unchanged in the urine, at least 100 cc. of urine are collected and examined in all cases. Unless the state of coma is known to have lasted for a long time, the gastric contents are aspirated and examined as well. Doses up to 3 grains (200 mg.) gave negative or very weak positive results on urinalysis; doses of 5 to 10 grains (300 to 600 mg.) gave positive results; higher dosage gave good yields allowing identification of the particular compound. The method detects ¼ grain (15 mg.) barbiturate in 100 cc. of urine or gastric contents, and with the presence of more than 1½ grains (100 mg.) per 100 cc. the yield after further purification was 60 to 70 per cent.

Journal of Laryngology and Otology, London

64:219-294 (May) 1950

Modified Radical Mastoid Operations with Meatal Preservation and with Observations on Hearing, in Operation Described. M. R. Sheridan. —p. 219.
Haemostasis in Fenestration Operation. I. S. Hall and A. M. Millar. —p. 233.
Deafness Due to Chronic Otorrhoea: Alleviated by Tympanic Insert. N. Asherson.—p. 239.

Lancet, London

1:937-984 (May 20) 1950

*Value of Electromyography in Clinical Neurology. F. Sargent.—p. 937.
Cardiac Failure. B. T. Parsons-Smith.—p. 943.
Achlorhydria in Young Adults: Study of Gastric Mucosa Obtained by Biopsy from Volunteer. R. K. Doig, R. Motteram, S. Weiden and I. J. Wood.—p. 948.
Aureomycin in Lymphogranuloma Inguinale. C. D. Alergant.—p. 950.
*Deoxycortone and Ascorbic Acid in Treatment of Rheumatoid Arthritis. E. G. L. Bywaters, A. St. J. Dixon and J. B. Wild.—p. 951.
Flaxedil as Adjuvant in General Anaesthesia: Particularly with Nitrous Oxide and Intravenous Pethidine. J. S. Ruddell.—p. 953.
Hypophysis in Rheumatoid Arthritis. A. G. E. Pearse.—p. 954.

Electromyography in Neurology.—Sargent maintains that electromyography can supply information of considerable importance in the solution of certain neurologic problems. He cites 17 cases all of which presented some point of doubt or difficulty which was considerably clarified by electromyography. The first 7 patients with lesions of the spinal cord included 2 with motor neurone disease; in 2 others synchronization in the paralyzed muscles pointed to a myelopathic lesion, almost certainly anterior poliomyelitis; the 3 others were grouped together because all had intramedullary lesions. The spinal interest in the 4 patients classified as having conditions involving nerve roots lies in the electromyographic detection of signs of nerve irritation in the first 3 and absence of it in the fourth, in whom angina of effort existed. Two other patients had lesions of the brachial plexus; 3 had lesions of peripheral nerves, and the last one had peroneal muscular atrophy with myotonia. This list of cases does not include all disorders in which electromyography is of value. No mention has been made of myopathy, nor has myasthenia gravis been included, although electromyography is now regarded in some countries as an indispensable method of assessing the severity of the disease. The variety of diseases represented should indicate that electromyography can no longer be regarded as of purely academic interest.

Deoxycortone and Ascorbic Acid in Rheumatoid Arthritis.—Bywaters and his associates did not observe any improvement in patients with rheumatoid arthritis treated with ascorbic acid and deoxycortone acetate in accordance with the technic recommended by Lewin and Wassén. In view of the numerous claims that such improvement does result, they made careful follow-up studies on 10 patients so treated. Like several other observers they found that deoxycortone and ascorbic acid has no immediate measurable or appreciable effect on rheumatoid arthritis beyond that which follows any nonspecific injection or treatment and that it is not in any way comparable to pituitary adrenocorticotropic hormone (ACTH).

Proceedings of Royal Society of Medicine, London

43:251-316 (April) 1950. **Partial Index**

Complications of Rectal Injections. A. D. Wright.—p. 263.
Three Unusual Cases of Colitis Treated by Surgery. E. C. B. Butler. —p. 266.
The German Food Shortage 1946-47 and Effects of Unlimited Food on Undernourished Men. E. M. Widdowson.—p. 271.
*Effect of Undernutrition on Size of Baby at Birth and on Ability of the Mother to Lactate. R. F. A. Dean.—p. 273.

Undernutrition of Mother and Size of Baby at Birth.—Analysis of the records of German obstetric clinics for the years from 1937 to 1948 revealed that, although there was no increase in the incidence of toxemias of pregnancy, stillbirths or malformations, there was a sharp fall in the average birth weight in 1945 when the food situation was at its worst. The children born then were about 185 Gm. lighter than those born in 1937-1938, but in the following years the weights rose again. The average length at birth was about 19 mm. less in 1945-1946 than in 1937-1938. The ability of women to breast feed was greatly reduced in 1945-1946 and the "physiologic" loss of weight of the child after birth continued longer than in 1937-1938. The gain of weight in the first ten days was also slower. The alterations in birth weight confirmed the similar reports from the Hague, Rome, Stalingrad and Vienna. The fact that undernutrition of the mother can reduce the size of the child appears to be established.

Quarterly Journal of Medicine, Oxford

19:97-160 (April) 1950

Association of Bronchial Carcinoma and Peripheral Neuritis. B. Lennox and S. Prichard.—p. 97.
Results of Treatment of Gastric Hyperacidity by Radium, with Special Reference to Duodenal Ulceration. M. McGeorge.—p. 111.
*Neurological Sequelae of Rh Sensitization. P. R. Evans and P. E. Polani.—p. 129.
Senile Purpura. R. N. Tattersall and R. Seville.—p. 151.

Neurologic Sequels of Rh Sensitization.—Evans and Polani present observations on 16 patients with neurologic sequels of severe neonatal jaundice, with serologic evidence of Rh isoimmunization. The findings in 63 cases selected from the literature are also analyzed. Some of the patients show a sequence of neurologic events suggesting that the disease follows a pattern and that different signs and symptoms may be found at different ages. After a usually stormy neonatal period with jaundice, difficulty of feeding, drowsiness, opisthotonos and respiratory disturbances, there follows a silent period between the ages of 1 and 2 or 3 months. Thereafter rigidity or intermittent opisthotonos, and sometimes involuntary movements, become obvious. In the period between the ages of 1 and 2 or 3 years hypotonia may be found. This hypotonic phase, during which mistakes in diagnosis are easily made, is probably also transitory and may be followed by another in which involuntary movements predominate. This is suggested by the observation that in some children the hypotonia is replaced by intermittent spasm resembling athetosis. Of the older patients, over 80 per cent show athetosis, chorea or choreoathetosis. Mental defect is often, but not always, present. Deafness is frequently found (30 per cent of the cases observed by the authors). They feel that it would be interesting to know what happens to the clinical picture in adult life. The variability found in the clinical picture of this disease is observed also in other lesions of the basal ganglions.

Acta Medica Scandinavica, Stockholm

137:233-304 (March 8) 1950. **Partial Index**

Artificial Kidney: XIV. Influence of Saline with High Glucose Content on Fluid Balance of Rabbits Treated by Dialysis. N. Alwall, P. Eglitis, L. Norviit and A. Tornberg.—p. 233.
Surgical Therapy of Chronic Arterial Hypertension. L. Langeron, V. Nolf and P. Langeron.—p. 237.
*Exophthalmos and Hyperthyroidism (Views on Case of Thyrotrophic Exophthalmos with Hyperthyroidism, Liver Damage and Anemia After Eight Years). B. Andersson.—p. 254.
Familial Occurrence of Pneumothorax Simplex. R. Berlin.—p. 268.

Exophthalmos and Hyperthyroidism.—Cases defined as thyrotropic hyperthyroidism (Mulvany) are those in which the clinical picture and course suggest a simultaneously increased secretion of the thyrotropic hormone and of thyroxin, the thyrotropic factor being the primary one. Exophthalmos is classified correspondingly as thyrotoxic and thyrotropic. Thyrotoxic exophthalmos occurs in early adult life and is 3 or 4 times as common in women as in men. The proptosis is thyrotoxic and is produced by traction on the eyeball of the anterior orbital unstriped musculature. The traction is caused by sympathetic overaction and operates in the presence of weakened voluntary extraocular muscles without evidence of increased retrobulbar pressure. There is neuromuscular degeneration, although the muscles remain normal in size and consistency. Proptosis is almost symptomless. The eyeball can often be pushed back into the orbit, although it quickly resumes its former position. Edema of the lids and chemosis are never seen; eye movements are normal, but paralyses may occur. Proptosis is improved or not altered but never made worse by thyroidectomy. Thyrotropic exophthalmos is a feature of the later years, the average age of occurrence in men being 54 and in women 47. It is 3 to 4 times as common in men as in women and is a disease of pituitary origin resulting from thyrotropism and possibly from sterone formation. The proptosis results from increased retrobulbar pressure due to enlargement of the extraocular muscles. The eyeball cannot be pushed back into the orbit. Edema of the lids and chemosis occur. Proptosis is seldom improved by thyroidectomy and may be exaggerated by the thyrotropic stimulation. The author cites a man aged 58 whose exophthalmos preceded hyperthyroidism by eight years. The disease was complicated by transient hepatic damage and anemia. The diagnosis was thyrotropic hyperthyroidism, and the man was treated with diethylstilbestrol and methylthiouracil. The proptosis diminished, and the patient believed that his exophthalmos was completely cured, although it remained visible and measurable.

Archivos de Medicina Infantil, Havana

19:1-50 (Jan.-Feb.-March) 1950. **Partial Index**

*Angiocardiography in Children. A. Castellanos, R. Pereiras and O. Garcia.—p. 29.

Angiocardiography in Children.—Castellanos and collaborators state that the child tolerates well injection of a radiopaque substance in sufficient quantity and concentration to obtain good angiocardiographic roentgenograms. The procedure is contraindicated in accentuated cardiac insufficiency. Serial roentgenograms are necessary for the correct diagnosis of cardiovascular lesions by angiocardiography; the radiologist must have considerable knowledge of the anatomic types of the abnormalities. Dextrocardiograms are of value in the diagnosis of abnormalities of the great veins, stenosis and idiopathic dilatation of the pulmonary artery, tetralogy of Fallot, Corvisart's disease, Eisenmenger and Taussig's complex, interventricular communication, total transposition of the great vessels, tricuspid atresia with associated defects, truncus arteriosus communis and pulmonary arteriovenous aneurysm. Levoangiocardiograms are of value in the diagnosis of abnormalities of the pulmonary veins, lesions of the mitral valve, coarctation of the aorta, patent ductus arteriosus, right sided aorta and aortic aneurysm, extrinsic compressions and torsions of the aorta. For diagnosis of the isolated defects of the septum both the dextroangiocardiogram and the levoangiocardiogram are necessary. Aortography is of value in the diagnosis of coarctation of the aorta, patent ductus, abnormalities of the large branches of the aorta, aortic insufficiency, truncus arteriosus communis and surgical arteriovenous anastomosis. Angiocardiograms should be obtained with a single injection of the contrast substance for the differential diagnosis between the cardiac and pericardiac shadows.

Beiträge zur klinischen Chirurgie, Berlin

179:161-320 (No. 2) 1950. **Partial Index**

Early Postoperative Death. H. Hellner.—p. 161.
Hypersensitivity Reaction of Mesenchymal Tissue Following Injections of Autogenous and Homogenous Blood. H. Herbig.—p. 179.
*Severe Ulcerative Colitis and Its Surgical Treatment. F. Mörl and W. Ondruf.—p. 225.
*Cellular Composition of Islands of Langerhans in Hyperinsulinism. W. H. Becker.—p. 291.

Surgical Treatment of Ulcerative Colitis.—Mörl and Ondruf state that mild and moderately severe cases of ulcerative colitis should be treated by the internist, while surgical intervention is indicated in the severe cases. If possible, operation should spare the patient a highly situated arti-

ficial anus. Three patients between the ages of 34 and 42 with ulcerative colitis are reported in whom this aim could be achieved by unilateral exclusion of the colon through ileoproctostomy. It is a well established fact that only the left colon is affected by the ulcerative process in 90 per cent of the cases and that the severity of the process increases from right to left when the entire colon is involved. It is possible that the digestive fluid of the small intestine contains an "anticolitic factor." This property of the intestinal juice still prevails in the lower small intestine and frequently in the cecum and loses its action only in the right colon because of the neutralization and inactivation of the digestive ferments. Ulcerative colitis develops and spreads only where the secretion of the small intestine has lost its "anticolitic factor." On the contrary, healing of the ulcerating lesions occurs where the active juice of the small intestine is diverted to the diseased mucous membrane by anastomosis. Results in the authors' 3 patients showed that ulcerative colitis can be controlled by internal anastomoses. Ileostomy, favored by other workers, does not exert a favorable effect on the colon after its total exclusion, since strictures, fistulas and abscesses frequently result. A permanent artificial ileac anus and a total colectomy may be required. The operative mortality of this procedure is high.

Cellular Composition of Islands of Langerhans.—Becker reports on 7 patients operated on for hyperinsulinism. An adenoma of the islands of Langerhans was the cause of the severe disturbance of metabolism in 3 patients, while hypoglycemia resulted from a diffuse hyperplasia and hypertrophy of the islands in the 4 remaining patients. The adenomas of the first 3 patients consisted nearly exclusively of B-cells, while the island organ of the pancreas showed a pronounced increase in A-cells and a definitely reduced number of B-cells, which produce the insulin. This fact is considered as a "compensatory inactivity-atrophy." The insulin production of the tumor may be compensated for some time by the transformation of the insulin-producing B-cells into A-cells, which are inactive with respect to insulin production. Hypoglycemic attacks will result only when the tumor reaches a certain size and produces more insulin than the pancreatic parenchyma which had been put at rest. There are island adenomas which do not cause clinical symptoms. This may be explained by the fact that the insulin production of the tumor is still compensated by the deficiency of the island tissue. The disturbed proportion between A-cells and B-cells explains the postoperative hyperglycemia which continues for several days until the inactive A-cells are transformed into insulin-producing B-cells. Patients with diffuse hypertrophy and hyperplasia of the island organ presented a relative and absolute increase in B-cells. "Chronic hyperinsulinism" is the anatomicopathologic counterpart of diabetes mellitus, which presents the reversed proportion between A-cells and B-cells. Island adenomas are not easily demonstrated during a surgical intervention. Counts of A-cells and B-cells in the islands of Langerhans may be an aid in diagnosis in case of negative exploratory excision.

Boletín de la Asociación Méd. de Puerto Rico, Santurce

42:169-254 (April) 1950. **Partial Index**

*Carbon Tetrachloride Poisoning. R. S. Díaz-Rivera, E. Ramírez and E. R. Pons.—p. 169.
*Anticoagulant Therapy in Thromboembolic Diseases. E. R. Pons Jr. and R. S. Díaz-Rivera.—p. 223.

Carbon Tetrachloride Poisoning.—According to Díaz-Rivera and collaborators, carbon tetrachloride poisoning may cause lower nephron nephrosis, hypertension of renal origin, fatty infiltration, degeneration and passive congestion of the liver and transient myocardial insufficiency, the severity and duration of which depend on the degree of poisoning. The damage to the myocardium slowly regresses, as shown by the persistence of changes of the T wave and of the S-T segment in the electrocardiogram for three or four weeks in cases of mild poisoning.

Anticoagulant Therapy of Thromboembolic Disease.—Pons and Díaz-Rivera employed dicumarol® therapy in 28 patients with acute myocardial infarct, pulmonary infarct, thrombophlebitis and acute arterial occlusion. Three hundred milligrams of dicumarol® was given the first day, followed by a daily dose which varied between 50 and 200 mg. according to prothrombin values and individual response. The drug was given for a period between nine and thirty-six days. The authors report a favorable effect on the course of the disease and on prevention of spread of thrombi and of thromboembolic complications.

Deutsche medizinische Wochenschrift, Stuttgart

75:161-192 (Feb. 3) 1950. **Partial Index**

Resection of Brain Lobe in Extensive Arteriovenous Aneurysm of Brain. P. Sunder-Plassmann.—p. 163.
Recent Diagnostic and Therapeutic Studies with Evipal Sodium in Psychiatry. F. G. von Stockert.—p. 166.
Thymol Turbidity Test in Various Diseases (720 Cases): Question of Hepatic Specificity. K. Denninger and A. Goedtler.—p. 169.
Cerebral Edema in Death from Starvation. G. Wilke.—p. 172.
*Excretion of Penicillin as Test for Renal Function. G. Dorner and H. Gros.—p. 173.

Excretion of Penicillin as Test for Renal Function.—Dorner and Gros point out that penicillin is eliminated by the kidneys with great rapidity unless the renal function is blocked by means of carinamide, beta-hypophamine (pitressin®) or other substances. The authors observed some cases in which the concentration of penicillin in the blood was unusually high. Testing the renal function of these patients, they nearly always obtained pathologic reactions. To investigate the relationship between penicillin blood level and renal function they gave patients an intramuscular injection of 20,000 international units in 2 cc. of twice distilled water. Three cubic centimeters of blood was withdrawn every hour for a total of five hours. The patient's fluid intake was restricted to 1,000 cc. on the day that the test was made. The so-called normal value of penicillin concentration in the blood had been determined in preliminary tests on 50 healthy subjects. Most patients subjected to the penicillin tolerance test were also examined with Volhard's renal function test. The penicillin tolerance test was made on 19 patients with clinically established renal lesions such as contracted kidney, sclerotic kidney, various stages of glomerular nephritis, necrotic kidney (corrosive mercuric chloride poisoning) and hydronephrosis. The excretion of penicillin was always greatly retarded in these cases, particularly in the cases of contracted kidney. The excretion of penicillin was usually within normal limits in lipoid nephrosis, focal nephrosis and amyloid kidney without functional impairment. In 9 patients with epidemic hepatitis the excretion of penicillin was usually somewhat retarded. The question arose whether the excretion of penicillin would show retardation in cases in which the impairment of renal function was still so slight that other tests did not as yet detect it. Patients with hypertension seemed suitable for this investigation. Thirty were selected in whom Volhard's test was still normal. In nearly half of these patients the penicillin tolerance test indicated a reduction of the renal function, suggesting that the test is more sensitive than other renal function tests.

Deutsche Ztschr. f. d. ges. gerichtl. Med., Heidelberg

39:577-728 (No. 6) 1949. **Partial Index**

*Lung Diseases in Workers Exposed to Aluminum Oxide. M. Schwellnus and H. Kleinsorg.—p. 577.
Air Embolism in Criminal Abortion. J. I. Obersteg.—p. 646.
Malignant Degeneration of a Nevus as the Result of Trauma. H. Wicke.—p. 688.
*Modification of Blood Alcohol Curve by Sugar. H. Klein.—p. 704.

Pulmonary Disorder After Exposure to Aluminum Oxide.—The investigations by Schwellnus and Kleinsorg were undertaken when many pulmonary disorders, including fatal ones, occurred in a plant in which aluminum oxide was produced. The authors describe studies on 37 workers. Twenty-one of these were free from pulmonary changes; in 7 roentgenoscopy revealed dust deposits in the lungs; 5 patients showed severe diffuse pulmonary fibrosis, and in 1 of these the fibrosis was combined with tuberculosis; the remaining 4 patients had chiefly tuberculous pulmonary lesions. The authors deplore that pulmonary lesions caused by aluminum oxide are not covered by compensation. Tuberculous lesions have a high incidence in workers producing aluminum oxide. This and the rapid course indicate that the pulmonary lesions produced in corundum (aluminum oxide) workers favor the destructive process of the tubercle bacillus.

Effect of Sugar on Alcohol Content of Blood.—Klein describes investigations which demonstrate that the concentration of alcohol in the blood can be greatly influenced by the consumption of sugar. When alcohol and sugar are given simultaneously the combustion of alcohol is accelerated during the resorptive phase. During the postresorptive phase the administration of sugar further increases the decomposition of alcohol. This fact is of legal importance in traffic accidents, since it would be impossible to ascertain the amount of alcohol that has been consumed if sugar or foods containing large amounts of sugar had been taken before, simultaneously with or shortly after the alcoholic beverage.

Helvetica Paediatrica Acta, Basel

5:1-98 (March) 1950. **Partial Index**

Modern Therapy of Tuberculous Meningitis: Introductory Remarks. G. Fanconi.—p. 3.
Tuberculous Meningitis in Light of Recent Clinical Observations and Laboratory Findings. K. Choremis, V. Constantidines, S. Pantazis and and others.—p. 5.
Treatment of Tuberculous Meningitis with Streptomycin. A. Ariztia, M. Latorre and A. Vargas.—p. 18.
*Present Status of Therapy of Tuberculous Meningitis and Results at Children's Hospital in Zurich. E. Rossi.—p. 27.
*Subdural Hematomas and Effusions Due to Obstretric Trauma. I. J. Jackson and A. Werner.—p. 59.

Tuberculous Meningitis Treated at Children's Hospital in Zurich.—Rossi reports on 43 children with tuberculous meningitis who were treated with streptomycin during a period of three years by three methods. Seven children were given large doses of the drug, and all of them died. Seven children were given small doses at long intervals for a short period, and 5 of them died. Twenty-nine children were given small doses for a long period, and 18 of them recovered or were considerably improved. At present 1 to 2 mg. of the drug per kilogram of body weight per day is given by the intrathecal route one or two times daily by intralumbar and suboccipital injection alternatively. The dose is reduced during the following weeks to 1 mg. per day with one daily puncture. Three weekly injections with the same dose are given during the second month, and two a week during the third month. This regimen is maintained until the cerebrospinal fluid is restored to normal. Suboccipital injections are given exclusively if the albumin level appears to be more than 10 per cent higher on lumbar puncture than on suboccipital puncture. Thirty to 40 mg. per kilogram of body weight per day is given intramuscularly for one month. Then the dose is reduced to 20 to 30 mg., and this dose is maintained until the cerebrospinal fluid is restored to normal. Combined treatment with streptomycin and 0.3 to 0.5 Gm. of paraaminosalicylic acid per kilogram of body weight daily in six divided doses in sugar-coated tablets is recommended, with rest intervals every third to fourth day.

Subdural Hematomas and Effusions.—Jackson and Werner report 6 cases of subdural hematoma and effusion due to severe trauma at birth in infants between the ages of 2 days and 11 months. Subdural hematomas and accumulations of fluid due to trauma at birth may be classified into two groups, acute cases with immediately severe symptoms and chronic cases in which the clinical syndrome develops gradually within weeks or months after birth. A fracture of the skull is frequently predominant in the clinical picture of the acute cases. There may also be signs of cerebral involvement, such as convulsions, hemiparesis and increased tonus in the extremities. Progressive hydrocephalus and epileptic seizures are predominant in the clinical picture of the chronic cases. Neurologic symptoms of deficiency and a poor state of nutrition may be present. Certain cases of microcephaly may be included in this group. A tentative diagnosis may usually be based on history and symptoms. The diagnosis can be established only by observation of accumulated fluid through a burr hole or with the aid of a puncture through the fontanels. Treatment should not be limited to removal of the accumulated fluid which compresses the brain. Drainage of the hematoma must be combined with excision of constricting subdural membranes which prevent the growth of the brain. The diet of the patients must restore and maintain the caloric intake and the fluid balance. The dietetic measures form an important part of the treatment facilitating radical surgical intervention. The authors agree with Elvidge and Jackson that the problem of subdural hematoma and effusion due to birth injury concerns three specialists, the obstetrician to prevent them, the pediatrician to make the diagnosis and the neurosurgeon to treat them. It also concerns the family physician.

Medizinische Klinik, Munich

45:385-416 (March 31) 1950. **Partial Index**

*Thymus Death in Newborn and Nurslings. E. Mink.—p. 395.
Streptomycin in Articular Empyema and in Other Sequels of Typhoid. K. O. Fehr and F. J. Pothmann.—p. 400.
Question of Justification of Tonsillotomy. W. Schmidt.—p. 403.
Agranulocytosis Following Intravenous Aminopyrine Administration. G. Friese.—p. 404.
Esophageal Diverticulum as Mechanical Cause of Bronchial Asthma. K. Herold.—p. 405.

Thymus Death in Newborn and Nurslings.—Mink describes 4 sudden deaths in newborn and infants in which hyperplasia of the thymus seemed to play a part. He suggests that in some cases, particularly in those in which asphyxiation takes place during the delivery or while the infant takes the first few breaths, mechanical factors, particularly an enlarged thymus, may play an important part. In the first 2 of his 4 patients the thymus weighed 38 and 42 Gm., respectively, that is about three times the normal maximum of 13.26 Gm. The first of these infants was large with excessive width of the shoulders. In this connection it is pointed out that the sternovertebral diameter in which the thymus is located is subjected to considerable compression during certain phases of delivery and that excessive size of the thymus may increase the pressure on vital vessels and nerves. Pressure of the thymus on the vagus with resulting death is likewise possible. It has not been definitely proved that the thymus hormone may be responsible for some deaths in infants. Mink cites opinions of Bomskov and others on the problem of the role of the thymus hormone.

Minerva Medica, Turin

41:289-324 (Feb. 17) 1950. **Partial Index**

*New Therapeutic Action of Choline (Preliminary Note). A. Degli Esposti.—p. 297.

New Therapeutic Action of Choline.—Degli Esposti administered choline hydrochloride to 14 women and 1 adolescent girl with hyperthyroidism by mouth in a daily dose of 1 Gm. for two weeks. Eight patients continued the treatment for two weeks more with a daily dose of 0.5 Gm. of the drug. The basal metabolic rate and the pulse rate improved, the body weight increased 1 to 3 Kg. and tremor, excitability, emotivity, insomnia, anxiety and palpitation were controlled. The satisfactory effects progressed from the fourth to the twelfth days with a general feeling of well-being. The circumference of the neck diminished by 1 cm. The subjective symptoms reappeared in the majority of patients three weeks after the discontinuance of the drug. These were again controlled by a second administration of the drug. Three patients had formerly obtained transient improvement from thiouracil therapy. They stated that the subjective feeling of well-being is more pronounced after choline hydrochloride than after thiouracil. In 3 patients with acute hyperthyroidism combined treatment with choline hydrochloride and 150,000 units of vitamin A, every five days for two or four weeks, gave good results. Choline hydrochloride in the doses cited is harmless even if administered for a long period of time.

Monatsschrift für Unfallheilkunde, Heidelberg

52:193-224 (July) 1949. **Partial Index**

*Severe Roentgen-Ray Burn During Nailing of Fracture According to Küntscher. H. Ott.—p. 205.
Therapeutic Experiences in Gas Gangrene Infections of Wounds. H. Ludwig.—p. 212.

Severe Roentgen Burn During Nailing of Fracture According to Küntscher.—One of the most important problems in Küntscher's nailing of fractures, according to Ott, is the reduction of the fracture, and this is done under roentgenologic control. He describes a roentgen burn produced during the reduction of a fracture of the femur. The operation lasted

three hours. Eight days after the nailing an ulcer developed on the posterior surface of the thigh. The ulcer still persists and measures 3 by 3 cm. The margins of the ulcer are undermined and sharp. The base of the ulcer shows necrotic and suppurating tissue. There are no signs of malignancy. The prognosis of these ulcers is unfavorable. The author discusses measures that will reduce the exposure of the patients to roentgen rays during this type of operation and thereby prevent the development of such ulcers. Reduction of the time of exposure, more effective filtration of the rays and an adequate focus-skin distance are some of the factors discussed.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

94:645-716 (March 11) 1950. **Partial Index**

*Treatment of Subacute Bacterial Endocarditis. T. W. van Wijk.—p. 651.
Panhematopenia: Case Reports and Differential Diagnosis. M. C. Verloop. —p. 661.
Hernia of Lumbar Nucleus Pulposus and Tumor of Cauda Equina. M. P. A. M. de Grood.—p. 670.

Treatment of Subacute Bacterial Endocarditis.—Van Wijk reports observations on 10 patients, all of whom were treated with penicillin and some of whom received in addition streptomycin and/or sulfapyridine. Three of these patients died, but in the others the therapeutic results were favorable and the patients are feeling well. The author advises that the daily dose of penicillin should be at least 500,000 units and the daily dose of streptomycin 1 or 2 Gm. Whenever fever and embolic and other symptoms do not subside within three or four days of the treatment, the daily dose of penicillin should be increased to 2,000,000 or even to 10,000,000 units. It is of paramount importance in patients with congenital or acquired heart defects to treat all inflammatory foci in mouth, nose and throat as well as abortion accompanied with fever and postpartum fever, with penicillin alone or in combination with sulfonamides and heparin.

Nordisk Medicine, Stockholm

43:491-530 (March 24) 1950. **Partial Index**

Gastric Motility in Nausea. V. Fuglsang-Fredriksen and P. Horstmann. —p. 494.
Bicarbonate Test. F. Hirschberg.—p. 498.
Complete Rectal Prolapse. H. Aronsson.—p. 499.
*Surgical Treatment of Ulcerous Colitis. J. P. Strömbeck.—p. 501.
Extraperitonealization of Duodenal Stump in Palliative Resection for Duodenal Ulcer. H. Wahren.—p. 503.
Polyposis of Colon. L. Ploman.—p. 506.
Pasteurella Infection Following Cat Bite. J. Rasmussen.—p. 508.

Surgical Treatment of Ulcerous Colitis.—Strömbeck emphasizes that most cases of ulcerative colitis require internal medical treatment but that the patients with the more acute types of the disease should be subjected to surgical treatment as early as possible. Restoration of normal fluid, sodium chloride and protein balance is most important in the acute cases. In severe acute infections and in certain of the more severe chronic cases ileostomy is a vitally indicated operative measure deservedly applied to a greater extent and earlier than formerly. With proper indication and technic and improved after-treatment the operation is not so socially disabling as might be assumed. Subtotal colectomy is to date the only therapeutic method sufficiently effective in advanced cases. Operation was performed in 54 cases of ulcerative colitis treated in Lund Hospital from 1940 to 1948, including 7 ileostomies followed in 5 by resection of the colon.

43:531-572 (March 31) 1950. **Partial Index**

Development and Content of New International Nomenclature of Diseases and Causes of Death. J. Byttner.—p. 535.
*Accidentally Detected Intrathoracic Diseases. N. Stensrud.—p. 544.
Thrombosis of Abdominal Aorta. H. Teir and T. Granroth.—p. 549.
Hemolysis Following Blood Transfusion. O. Hartmann and V. Gaustad. —p. 554.

Accidentally Detected Intrathoracic Diseases.—Stensrud reports on 63 patients with diseases of the lungs and mediastinum from surgical department A of the Rikshospital, 52 disclosed on mass roentgenography and 11 on routine roentgen examination. Forty-four patients were operated on, with 2 postoperative deaths. Of the 14 patients with malignant disorders 12 had cancer, 1 had neurinoma and 1 had lymphogranulomatosis (Hodgkin's disease). In 1 instance the tumor removed was an alveolar cell carcinoma. Half of the patients with cancer of the lung were inoperable. In addition to the time factor, biologic factors and localization of the tumor play a part in operability. Thirty-three weeks on the average elapsed between detection of the tumor and admission of the patient. Mediastinal tumors are not so rare as formerly supposed. Treatment consists in surgical removal and radiotherapy, the latter considered only in tumors of lymphatic origin. Expectant treatment is not permissible in cases of accidentally detected mediastinal tumors. If the tumor tissue begins to grow, the possibility of radical removal becomes minimal. Certain diagnosis of a mediastinal tumor is most frequently impossible without exploratory operation. Patients with these tumors should be admitted without delay to a special department equipped for diagnosis.

Presse Médicale, Paris

58:317-332 (March 25) 1950

*Chloramphenicol (Chloromycetin®) in Epidemic Typhus in North Africa. E. Benhamou, F. Destaing and A. Sorrel.—p. 317.
Prosthetic Appliance of Gold Cribble Plate to Large Frontal Cranial Gap; Results After 40 Years. L. Imbert and Pierre Moiroud. —p. 319.
*Vaccinal Nephritis. J. F. Porge.—p. 320.
The Drunkard's Position and Its Treatment. A. Rèquet.—p. 320.

Chloramphenicol in Epidemic Typhus.—Benhamou and co-workers report 3 cases of epidemic typhus in natives of North Africa who were treated with chloramphenicol (chloromycetin®). An initial dose of 2.50 to 3 Gm. of the drug and after that of 0.25 Gm. every two hours were given by mouth in tablets for three to five days until the temperature dropped. Treatment was then continued with 0.25 Gm. every three to four hours for an additional eight days. The average daily dose of the drug was 50 to 60 mg. per kilogram of body weight, and the total dose was 30 to 40 Gm. The temperature was restored to normal by lysis within three to five days. Results of treatment of epidemic typhus with aureomycin, which were reported by the authors in a previous paper, showed that the effect of this drug on the fever was somewhat more rapid, but chloramphenicol has the advantage of controlling simultaneously exanthematous typhus and typhoid. Chloramphenicol therefore should be the drug of choice in cases in which differential diagnosis between the two diseases is uncertain. The typhoid coagglutinins which appear or may be increased frequently in exanthematous typhus, particularly in persons vaccinated against typhoid, paratyphoid A and paratyphoid B, may make the diagnosis questionable for some time. Chloramphenicol does not prevent an increase in the rise of agglutinins to Proteus OX 19, whereas typhoid coagglutinins decrease. A relapse occurred in 1 of the authors' cases, when chloramphenicol therapy was discontinued too soon, i. e., after five days. Untoward reactions consisted of nausea, vomiting, red tongue and inflamed pharyngeal mucosa. The last mentioned reaction may have been responsible for secondary parotitis in 1 case. Hypotension or collapse did not occur. Both aureomycin and chloramphenicol are specific drugs in epidemic typhus of North Africa.

Vaccinal Nephritis.—Porge reports on 357 children and adolescents aged less than 20 years who submitted to thermal treatment for their nephropathy. History revealed a preceding vaccination in 53 instances. Thus vaccination seems to be responsible for renal accidents in more than 13 per cent of vaccinated persons. These accidents may occur after vaccination with diphtheria antitoxin alone or combined with typhus-paratyphoid A-paratyphoid B (T.A.B.) vaccination, after BCG vaccination, but particularly after T.A.B. vaccination in children. The renal disturbances are characterized by their early occurrence (demonstrating their allergic nature) and manifested by albuminuria and frequent hematuria. Symptoms appeared occasionally after the first injection of the vaccine, but in the majority of patients after the second or third injection. Administration of the vaccine in fractional doses seems to favor development of the allergy which apparently provides the basis for these accidents. Urinalysis is indispensable at the time not only of the first injection but of all following injections and several days after the last injection. A twenty-four hour specimen of

urine, or preferably one obtained after a fatigue test, should be examined. Albuminuria, even though mild, or a history of a nephropathy which was cured are definite contraindications to vaccination.

58:333-348 (April 1) 1950

*Aureomycin, New Antisyphilitic Drug. C. Levaditi and A. Vaisman. —p. 333.
Several Cases of Exanthematous Typhus in Patients Not Infested by Lice. P. Giroud, J. Boyer and R. Vargues.—p. 334.

Aureomycin in Syphilis.—Experiments of Levaditi and Vaisman on syphilitic rabbits and mice demonstrated that aureomycin possesses incontestable treponemicidal properties. These were manifested by a more or less rapid cicatrization of the syphilitic lesions in the rabbits, by a spirochetalytic effect on the Treponema pallidum contained in these lesions, by microbial sterilization in mice with clinically latent syphilis and by the suppression of virulence in the peripheral lymphatic system of rabbits. Untoward reactions consisted of local necrotic lesions. A review of the American and British literature on therapeutic trials with aureomycin in syphilitic patients revealed cicatrization of the syphilitic lesions and a tendency of the serologic reactions to become negative. Gastrointestinal intolerance of the drug was manifested by anorexia, nausea and vomiting. The authors do not consider aureomycin an antisyphilitic drug of highest value. Its use may be indicated in cases of resistance to arsenic-bismuth therapy and to penicillin.

58:349-388 (April 5) 1950. Partial Index

Electron Microscopic Study of Adsorption of Viruses on Red Blood Corpuscles. C. Levaditi.—p. 349.
Retroperitoneum: New Procedure of Roentgenologic Examination of Abdomen. L. de Gennes, J. P. May and G. Simon.—p. 351.
*Starting Point of Postoperative Phlebitis. J. Ducuing, P. Guilhem, A. Enjalbert and others.—p. 353.
*Protection of Pleura by Streptomycin and Streptomycin Therapy Associated with Artificial Pneumothorax. C. Mattei, M. Mayer, M. Tristani and A. Barbe.—p. 355.

Starting Point of Postoperative Phlebitis.—Ducuing described the minor signs of pelvic phlebitis after a laparotomy in one of his earlier papers and expressed the belief that postoperative phlebitis of the lower extremities is preceded most frequently by a phlebitis of one of the pelvic veins. At that time thrombosis of the pelvic veins could not be visualized with the common roentgenologic technics, although clinical examination made its occurrence very likely. A new technic for visualizing the pelvic veins was devised by two of the authors' co-workers. They injected the contrast medium through the vena dorsalis penis or vena dorsalis clitoridis. The plexus of Santorini, the afferent veins and the hypogastric veins can be visualized by this technic. Two cases are reported in which this technic was employed. An isolated pelvic phlebitis after an exploratory laparotomy in a patient erroneously suspected of having cancer of the stomach was demonstrated in the first case, while pelvic phlebitis extending to the lower limb after osteosynthesis in a patient with diaphysial fracture of the femur was demonstrated in the second case. Phlebograms showed the involvement of the pelvic veins exactly as suggested by the clinical signs. Phlebography of the extremity in certain cases should be supplemented with pelvic phlebography, since the starting point of a phlebitis of the lower limb may often be localized in the pelvis.

Protection of Pleura by Streptomycin.—According to Mattei and his co-workers, streptomycin therapy does not cause pleural adhesions in the course of pulmonary tuberculosis. It protects the pleura from complications which were frequently associated with artificial pneumothorax. Recent serofibrinous or fibrinous exudates in adult patients with tuberculous pleurisy disappeared within one month after early treatment with 60 to 100 Gm. of streptomycin in daily doses of 2 Gm. intramuscularly. A large apical adhesion in a young patient with bronchopneumonic infiltration of the entire upper lobe of the left lung who was treated with artificial pneumothorax and streptomycin disappeared completely after the administration of 315 Gm. of streptomycin. A therapeutic pneumothorax was induced in 2 patients with miliary tuberculosis and generalized bronchopneumonia of both lungs after treatment with total doses of 350 to 500 Gm. of streptomycin for periods of six to eight months. This delayed pneumothorax was desirable because of a unilateral cavity and was made possible by the disappearance of the pleuritic adhesions. No pleural exudate and no subpleural focus, except for adhesions of long standing, were demonstrated in the course of 35 pleuroscopies. No pleural accidents occurred in 90 cases in which pneumothorax was produced after preparatory treatment with streptomycin for one month and maintained with continued streptomycin therapy for three months. Eight patients with pyopneumothorax are reported in whom a cure was obtained with a total dose of 300 Gm. of streptomycin given intramuscularly and combined with the daily administration of 1,000,000 units of penicillin for one month. Two patients with extrapleural pyopneumothorax were cured with 580 Gm. of streptomycin by the intramuscular route and with 6 transparietal injections of 0.50 Gm. of streptomycin into the extrapleural space.

Revista de Gastro-Enterología de Mexico

15:1-66 (Jan.-Feb.) 1950. Partial Index

Cysts of Liver. J. F. Espinosa and E. F. Espinosa.—p. 1.
*Sympathicoblastoma of Stomach. R. Villarreal.—p. 14.

Sympathicoblastoma of the Stomach.—According to Villarreal the literature records no case of sympathicoblastoma of the stomach. He reports a case in which microscopic examination of the tumor tissue demonstrated that the tumor had developed from sympathetic nerve cells of Auerbach's plexus. The clinical symptoms and the histopathologic picture corresponded to those of gastric schwannoma. The author believes that gastric neurogenic tumors originate either in the perineural or in the sympathetic nervous structures.

Revista Médica Dominicana, Ciudad Trujillo

5:1-100 (No. 1) 1950. Partial Index

Technics of Vaccination by BCG. J. A. Dajer S.—p. 29.
*Vitamin D_2 in Large Doses as Adjuvant to Sulfones in Therapy of Tuberculoid Leprosy. G. Herrera.—p. 42.
Weil-Felix's Reaction. A. M. Ponce Pinedo.—p. 69.
Pulmonary Complication of Parasitic Infections. A. Peñuela Rozo. —p. 81.

Vitamin D_2 as Adjuvant to Sulfones in Tuberculoid Leprosy.—Herrera reports 8 patients, mostly children and adolescents, 3 with active tuberculoid leprosy, and 5 with tuberculoid leprosy in a torpid state and resistant to sulfone therapy. Treatment consisted in the subcutaneous administration of 500,000 international units of vitamin D_2 (calciferol) every four days, then every two days and finally every day. Each series of injections, during which from 3 to 6 ampules were given, was followed by a week of rest. In 2 patients the order of administration was reversed, the injections being given daily, then every second and fourth days. Later a single dose of 750,000 international units was given every six days. Glucosulfone sodium (promin®) therapy was given simultaneously with the calciferol, its treatment-free intervals coinciding with those of vitamin D_2, whenever possible. The total dose of vitamin D_2 varied between 9,500,000 and 12,000,000 international units in a period of 90 to 120 days. Infiltration regressed, plaques and achromic macules underwent desquamation, leaving light patches which disappeared during continued treatment. There was no hypervitaminosis. Calcemia, which is usually low in these patients, reached normal values, and when it exceeded these the interruption of treatment for ten days restored the calcium level to normal. The author concludes that vitamin D_2 therapy is not only useful as an adjuvant to sulfone therapy in tuberculoid leprosy but is also effective against the neuritides and arthralgias resulting from treatment with those drugs.

Schweizerische medizinische Wochenschrift, Basel

80:217-248 (March 4) 1950. Partial Index

Contribution to Hepatic Diagnosis by Use of Intravenous Administration of Galactose Solution. O. Schildknecht.—p. 219.
Pulse at High Altitudes. E. Wyss-Dunant.—p. 224.
Conglutination by Thrombin-Gelatin Foam (TGS). O. Wyss.—p. 227.
*Combined Therapy with Colchicine and Roentgen Rays for Leukemia. E. Keibl and A. Lötsch.—p. 228.

Colchicine and Roentgen Rays in Leukemia.—Keibl and Lötsch report chronic myeloid leukemia in 3 patients between the ages of 40 and 47. They were given a therapeutic trial with colchicine by mouth, followed by roentgen irradiation. The leukocyte counts in 1 instance decreased from 400,000 to

240,000, but the differential blood picture was unchanged. The size of the spleen did not diminish. The patients' condition deteriorated within several months, and they were readmitted to the hospital. This time 2 mg. of colchicine was administered subcutaneously and roentgen irradiation with doses of 150 r, a filter of 0.5 mm. and a focus of 30 cm. was carried out within two hours after the injection of colchicine. The leukocyte counts of the 3 patients were reduced from 160,000 to fairly normal levels, from 490,000 to 40,000 and after ten days to 7,800, and from 180,000 to 10,000, respectively. The differential blood picture no longer showed myeloblasts or premyelocytes. The erythrocyte counts were restored to normal, and there was diminution in the size of the spleen. The blood picture of the first patient whose leukocyte count was restored to normal remained unchanged for three months. Progressive changes of chronic myelosis then occurred gradually, and roentgen irradiation was resumed only after twenty-one months. The improvement in the condition of the second patient lasted one year as compared to benefit of six months' duration after treatment with colchicine by mouth. The third patient died six months after the colchicine by subcutaneous administration combined with roentgen irradiation. Death resulted from an acute increase in the number of myeloblasts with signs of acute leukemia. Colchicine alone does not exert an effect on the white blood corpuscles, but it increases the effect of the roentgen irradiation and makes possible a therapeutic effect in cases refractory to irradiation. This is due to blocking of the mitosis in the first stage of the metaphase and to a toxic effect on the nuclei and the protoplasm of the mature leukocytes, as of the myelocytes and myeloblasts.

Semaine des Hôpitaux de Paris

26:1239-1296 (April 10) 1950. **Partial Index**

*Treatment of Postpartum Thromboembolism: Two Years Experience at Baudelocque's Clinic. E. Lévy-Solal, J. Badin and J. Choukroun. —p. 1239.
Comparative Study of Vernes Resorcinol Test and of Index of Haptoglobin in Course of Postpartum Thromboembolism. J. Badin and J. Choukroun.—p. 1243.
Anesthesia with Thiopental Sodium, Curare and Oxygen in Course of Cesarotomy. J. Grasset and J. Lassner.—p. 1248.
Pulmonary Tuberculosis and Gestation. P. Morin and J. Chertier. —p. 1250.
*Attempt at Identification of Active Principle of Uterine Contractions in Course of Parturition. F. Hanon, Mrs. Coquoin-Carnot and P. Pignard.—p. 1264.

Treatment of Postpartum Thromboembolism.—Lévy-Solal and co-workers report on 50 women with postpartum thromboembolism. Pulmonary embolism was treated with morphine and atropine and oxygen and procaine hydrochloride given immediately. This was followed by heparin. The first two injections of 100 to 200 mg. of heparin, according to the weight of the patient, were followed by injections of 40 to 100 mg. every four hours controlled by the coagulation time. Blood sedimentation rate and minimum blood sediment, Vernes resorcinol test, formol-gel test of plasma, and haptoglobin index were done on the day on which the embolism occurred, on the day on which the temperature was restored to normal and every five days thereafter. Heparin treatment was continued until the temperature dropped below 37.6 C. (99.6 F.), but not for more than four days. For the following four to five days the patients were given 1 tablet of 100 mg. of phenylindanedione for 20 Kg. of body weight, i. e., 3 tablets on the average, combined systematically with 10 mg. of esculoside for 1 tablet of phenylindanedione. This new anticoagulant exerts a definite anti-vitamin K effect which may be increased by large doses of vitamin P. The next day 200 to 300 mg. of phenylindanedione combined with 20 mg. of esculoside are given. The prothrombin level should be between 20 and 35 per cent on the following day. Phenylindanedione is given every three or four days according to the prothrombin level. The average dose should be 200 to 400 mg. combined with 20 mg. of esculoside. Treatment was discontinued when the haptoglobulin reached values below 1.7, the Vernes resorcinol test became normal and the formol-gel test of plasma negative. Phlebitis of the lower limbs was treated by double lumbar infiltration with 1 per cent procaine hydrochloride in isotonic sodium chloride solution and heparinization with 100 mg. for the first injection and 50 mg. for the following injections given to a woman with a body weight of 50 to 60 Kg. Control of coagulation time was carried out as in cases of pulmonary embolism. Heparin treatment should be continued as long as the fever does not show any tendency to drop. Early, gradual mobilization, consisting of extension and flexion exercises of the foot and slower foot movements are indicated, while early rising may be harmful. Nearly all of the authors' patients recovered without incident within two weeks.

Active Principle of Uterine Contractions in Parturition.—Hanon and his co-workers obtained an extract from the uterus of women and rabbits in labor and from the amniotic fluid of cows, mares and ewes in labor which exerted an excitomotor effect on the uterine horn of guinea pigs in vitro. A strong contraction of the uterus could be produced with a properly chosen single dose of this extract, and this single contraction was then followed by repeated contractions at regular intervals with complete relaxation. The term eutocin was coined for this active principle. Injections of eutocin given to pregnant mice caused bringing forth of young mice at the seventeenth day of gestation within fourteen to eighteen hours after the injection. The normal gestation period of mice is twenty-one days. Contractions were increased in intensity and intervals became shorter after an injection of a weak dose of eutocin in a primipara in protracted labor. Regular contractions every fifteen minutes were produced for three hours by the injection of a weak dose of eutocin in a primipara with uterine inertia. Eutocin produced uterine contractions and dilatation of the cervix from a diameter of ⅞ inch (2.3 cm.) to 1½ inches (3.8 cm.) within three hours in a tripara in whom the fetus had died eight days before term. Uterine contractions every four minutes for eighteen hours were produced with eutocin in a primipara aged 19 in whom injections of estrus producing compounds and of posterior pituitary lobe had been ineffective. The best suitable dose and the best route of administration of eutocin have not been determined. An extract obtained from a uterus whose motor quality is weak exerts a weak excitomotor effect. Extracts obtained from the uterus of multiparas seem to be richer in eutocin than those obtained from primiparas.

Zeitschrift für klinische Medizin, Heidelberg

145:547-648 (Dec. 6) 1949. **Partial Index**

Method for Determination of Prothrombin Time and Its Diagnostic Value in Internal Medicine. S. Witte.—p. 547.
Inhibition of Coagulation of Blood Serum and of Its Fractions. H. Mauer.—p. 566.
*Evaluation of Cerebrospinal Fluid in 300 Cases of Multiple Sclerosis. H. Weise and A. Schrader.—p. 576.
Disposition to Inflammation and Metabolic Status. C. Brentano.—p. 582.

Cerebrospinal Fluid in Multiple Sclerosis.—Weise and Schrader analyzed the cerebrospinal fluid in 300 cases of multiple sclerosis. They classified as acute all cases which, without regard to the previous course, had shown new changes within the last three to four months and as chronic all without new changes during this period. Their material included 145 acute and 165 chronic cases. They further classified their cases on the basis of the symptomatology into cerebral, spinal and cerebrospinal forms. Among the 145 acute cases there were 104 with pathologic changes in the cerebrospinal fluid, but among the 165 chronic cases only 68 involved such changes. This seems to indicate that the acuteness of the process is to a certain extent reflected in the cerebrospinal fluid, but the authors have tried to ascertain why the cerebrospinal fluid was normal in 41 of the acute cases. They found that acute cerebral processes showed normal cerebrospinal fluid pictures much more often than did the acute spinal or cerebrospinal processes. This may possibly be due to topographic factors in the demyelinization process. Observations on the cell count, the mastic test, the increase in the protein content and in the protein quotient in the various clinical forms of multiple sclerosis are recorded. The authors agree with Marburg and Pette that on the whole the cerebrospinal fluid changes are not characteristic in multiple sclerosis. Changes in the cerebrospinal fluid permit only limited conclusions on the clinical course. Since the initial clinical symptoms of multiple sclerosis are often atypical, the presence of cerebrospinal fluid changes may prove that they are of organic origin.

BOOK NOTICES

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

Fundamental Principles and Processes of Pharmacy. By Henry M. Burlage, Ph.D., Dean and Professor of Pharmacy, College of Pharmacy, University of Texas, Austin, Joseph B. Burt, Ph.D., Dean and Professor of Pharmacy, College of Pharmacy, University of Nebraska, Lincoln, Charles O. Lee, Ph.D., Professor of Pharmacy, School of Pharmacy, Purdue University, Lafayette, and L. Walt Rising, Ph.D., Professor of Pharmacy, College of Pharmacy, University of Washington, Seattle. Second edition. Cloth. $5. Pp. 651, with 201 illustrations. McGraw-Hill Book Company, Inc., 330 W. 42d St., New York 18; Aldwych House, Aldwych, London, W.C.2; Toronto, 1949.

This book is intended as a text for introductory pharmacy. Its purpose is to introduce the student of pharmacy to the professional subjects he will study in his academic program. The first 132 pages are devoted to what may be termed "background information" of the profession of pharmacy including: its historical development, its ethical principles, the pharmaceutic curriculum, opportunities in the profession and essential pharmaceutic literature. The material in the six chapters encompassing these pages is presented in a clear, concise and interesting manner and gives the beginning student a splendid orientation with the past, the present and the probable future of his profession. Indeed, this concise condensation could be reviewed to advantage by present day practitioners of pharmacy. It represents a well-thought-out outline which would give to the beginning student a broad vision of the profession he is entering.

There is a chapter on the natural products used in pharmacy which is succinctly written and summarizes well the sources and pharmaceutic applications of these important classes of substances. At the end of each chapter is a list of collateral readings and several study questions which should materially assist the student as well as the teacher.

The appendix contains a suggested list of reference books for the pharmacist's library, a list of the minimum standard equipment for a pharmacy and a valuable list of educational films on pharmacy and related subjects. There is a well prepared index, within which is a pronouncing index of pharmaceutic terms, a valuable aid to the beginning student. The remainder of the book is devoted to thorough discussion of the principles and processes employed in pharmaceutic operations. The discussion emphasizes the principles behind the processes and the general application of these processes and principles to pharmaceutic operations, rather than attempting to relate the discussion directly to specific official drugs. Included are chapters on metrology; physical properties of matter; theory, generation and control of heat; applications of, and processes involving heat; solutions; colloidal state; emulsification and emulsions; extraction; precipitation, crystallization and granulation; mechanical subdivision of drugs; separation of substances by mechanical means, and storage and preservation of drugs.

It appears to this reviewer that the discussions of the fundamental principles and processes of pharmacy are too advanced for the beginning student. For example, the chapters on the physical properties of matter present rather extensive discussions of specific gravity, viscosity, refraction, optical rotation, colorimetry and surface tension. The chapter on the theory, generation and control of heat includes much material which would be difficult for the beginning student without the necessary background courses to follow. This is true of other chapters. The fundamental principles and processes of pharmacy are based on the basic knowledge of several related sciences, and it is doubtful if they can be taught effectively before the student has had an opportunity for prior consideration of these related sciences. However, it is only fair to point out that, in the preface, the authors have anticipated the criticism that the material presented is too advanced; nevertheless, they assert that the principles presented are "so fundamental to the profession that they should be immediately impressed upon the new student and repeatedly emphasized throughout the educational program."

This book is an excellent reference book. It is well written and the illustrations are clear and instructive. The type is easy to read, the paper is sturdy and the book is well bound.

Brucellosis (Undulant Fever): Clinical and Subclinical. By Harold J. Harris, M.D., F.A.C.P. With the Assistance of Blanche L. Stevenson, R.N. Foreword by Walter M. Simpson, M.S., M.D., F.A.C.P. Second edition. Cloth. $10. Pp. 617, with 111 illustrations. Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers, 49 E. 33rd St., New York 16, 1950.

The first edition of this book was published in 1941. In that edition, the author attempted to convince the reader that chronic brucellosis was a common disease frequently overlooked by the physician. His conclusions were based on personal observation of "some 250 cases." He has now extended his observations so that the second edition includes his experience with an additional 450 cases, making a total of 700. The stated purpose of this new edition is to give physicians the benefit of this added experience and to show the relation of brucellosis to arthritis, salpingitis and ocular disease and to point out the psychosomatic aspects of chronic brucellosis. In addition, there is an extended discussion of the diagnosis and treatment of brucellosis.

There are introductory chapters on the etiology, epidemiology and pathology of brucellosis, followed by an excursion into the symptomatology of the disease. The author is a champion of the entity of chronic brucellosis. In fact, the bulk of the monograph is concerned with his concept of chronic brucellosis. The reviewer pondered for a long time the following statement, which defines acute and chronic brucellosis: "In this monograph the term 'acute' is used to designate brucellosis of sudden or gradual onset, with relatively high fever, of any duration. By 'chronic' brucellosis is meant a case of insidious onset, long duration, and slow progress, attended by low-grade fever or by no fever. It may clarify terminology further to refer to the acute or chronic phase, or stage, of the disease rather than to apply either term to the illness itself." The author's concept of chronic brucellosis is confusing.

The most serious criticism of this book is that the diagnoses of illustrative cases remain too frequently in doubt. All through the chapter on symtomatology, one can seriously question the precise diagnosis of many of the cases.

Harris cautions the reader not to be too enthusiastic in the diagnosis of brucellosis and yet he deviates often from this dictum in describing his own efforts at arriving at a correct diagnosis. In several case histories, the objective criterion used for the diagnosis is a positive reaction to a dermal test with brucella antigen. Most workers, including Harris, are agreed that a positive reaction to a skin test does not denote active disease. But, continues Harris, if the skin test is positive, and the patient feels better after receiving a course of brucella vaccine, then there is little doubt that the patient has had active disease. In discussing chronic brucellosis, the author states that negative hemocultures and absent agglutinins are the rule rather than the exception. He states categorically "absence of agglutinins is without significance."

Most investigators in the field of brucellosis will agree that the correct diagnosis of the disease in any stage is difficult to make and is dependent on laboratory data such as the presence of agglutinins or positive blood cultures. In the absence of these objective laboratory results, the clinician is on uncertain ground. A scientific dissertation on brucellosis should be based on sound clinical and laboratory data. The chapter on "Psychologic Studies in Chronic Brucellosis" is inadequate because accurate and dependable diagnostic information is missing in the cases that are described.

In the chapter dealing with treatment, Harris focuses most of the reader's attention on vaccine therapy for chronic brucellosis. The most encouraging advancement that has been made in the field of human brucellosis since the last edition of this monograph appeared has been the treatment of the disease with the antibiotics. He calls attention to this achievement in the closing pages under "Addenda." He refers to his own study with aureomycin in the treatment of 109 cases of chronic brucellosis. If one consults the original paper describing this experience, one gains the impression that the author is more concerned with the side effects of aureomycin than in establishing proof of a correct diagnosis in the patients treated.

The bibliography includes 747 references, 73 of which are documented as "personal communication." This monograph cannot be recommended as a definitive statement on brucellosis, especially chronic brucellosis. The effort has done little to clarify the confusion and misunderstanding surrounding the subject.

A Guide to the Diagnosis of Occupational Diseases: A Reference Manual for Physicians. Compiled Jointly by the Staffs of the Industrial Health Division, Department of National Health and Welfare [Canada], and the Division of Industrial Hygiene, Department of Health for Ontario. Published by Authority of the Honourable Paul Martin, Minister of National Health and Welfare. Cloth. $1. [Gratis to Canadian physicians]. Pp. 317. Department of National Health and Welfare, Jackson Building, Ottawa, Canada, 1949.

In the preface of this volume it is stated that the book is to be regarded as a manual prepared with the intention of rendering assistance to physicians in the diagnosis and prevention of occupational diseases.

It also is stated that the publication is intended to present only a brief summary of current conceptions in the field of occupational diseases and that the material represents a collective effort of the staff members of the Industrial Health Division, Department of National Health and Welfare, Dominion of Canada, and the Division of Industrial Hygiene, Department of Health, for the Providence of Ontario, Canada.

The manual is divided into 5 chapters, with the following headings: (1) The Occupational Disease; (2) List of Occupations and Their Potential Hazards; (3) Harmful Conditions and Substances; (4) The Occupational Dermatoses, and (5) Workmen's Compensation in Canada. In addition, there are selected references to the literature on the subject presented.

The authors are to be congratulated on the emphasis given to the discussion of physiologic action and toxicity of many chemicals to which employees are exposed in the work environment connected with the manufacture and processing of many products. The presentation is made in simple matter-of-fact phraseology.

This manual is commended to all physicians for careful reading whether or not they practice directly in the field of occupational medicine, since usually the patients of all physicians are employed in some occupation and this aspect of the usual medical history is too frequently neglected. Obviously, sound clinical diagnosis and therapy as well as prevention must take into consideration the etiologic factors concerned with complaints presented by patients during their professional visits with a physician.

Die Physiologie der Zeugung des Menschen. Von Professor Dr. Hermann Knaus. Third edition of "Die periodische Fruchtbarkeit und Unfruchtbarkeit des Weibes." Cloth. 150 Austrian schillings; 50 marks; 50 Swiss francs. Pp. 485, with 105 illustrations. Verlag Wilhelm Maudrich, Spitalgasse 1 B, Wien IX, 1950.

The first two editions of this book were published in 1934 and 1935 respectively, and they were popular. In fact, the book was translated into English and Spanish. At the present time, English, Spanish, Italian and French translations are being prepared of this edition.

The author deals with procreation both in animals and in humans. The major portion of the book is devoted to the periodicity of the menstrual cycle and to ovulation. The author discusses 15 different methods of attempting to determine the exact time of ovulation in women. From his own extensive studies and the many reports in English, French and American literature, he states there is general agreement that ovulation occurs physiologically on the fifteenth day before menstruation.

The Knaus-Ogino rhythm method of contraception is universally known. Knaus insists that the only possible way a woman can determine the exact day of ovulation in every menstrual cycle is to keep faithfully a menstruation calendar such as he has devised.

There is an extensive section on the medicolegal significance of the knowledge of the physiology of procreation. Numerous reports of actual cases tried in the courts of Germany and elsewhere are quoted in full. There is also a chapter on the history of the knowledge concerning the exact day of conception. The author begins with the Mosaic laws and thoroughly analyzes all reports and investigations dealing with this subject. Of course, Knaus has a great deal to say about Ogino who, in the opinion of Knaus, has received undeserved credit in the matter of the "safe period."

At the end of the book is an extensive and complete bibliography, in which all the important contributions on procreation in the world literature are included.

The book is well written in simple German, and it is analytic and critical of the scientific contributions made in the field of procreation. However, because of the author's personal interest and important contributions in this field for more than 20 years and the many battles he has fought to prove his contentions, he is at times boastful and at other times bitter and vehement. This is to be expected in any book written by a pioneer who has been criticized for many years. The book is a substantial contribution to the physiology of procreation, and everyone interested in this subject should read it.

Die Technik der Blutgruppen- und Blutfaktorenbestimmung. Von Dr. med. habil. Peter Dahr, Dozent an der Universität Göttingen. Fourth edition. Paper. Price, $3.75. Pp. 251, with 28 illustrations. Georg Thieme, Diemershaldenstrasse 47, Stuttgart-O; imported by Grune & Stratton, 381 4th Ave., New York 16, 1948.

Among the publications of this size, this volume is probably the most up-to-date one in the field of blood groups. This is particularly astonishing in face of the isolation caused by the war during which the material for this compendium was assembled.

The contents is divided into 20 readable chapters, 4 of which deal with the classic blood groups, subgroups and their determinations. One chapter each is devoted to the factors M and N, P and Rh. In the following 10 chapters, other agglutinogens, group-specific substances, blood groups in animals and the forensic application of the science of hematoserology are discussed. The last 3 chapters deal with the preservation and storage of test serums, inheritance tables and a bibliography, of more than 300 references.

Of particular interest is chapter 4, which the author entitles, "The Positive Determination of Blood Group O (The Establishment of the Heterozygous Types AO and BO)." He starts with the premise that animal anti-O serums absorbed with A_1B cells still react with O and somewhat more weakly with A_2 cells. He attributes this to the fact that fifteen out of sixteen A_2 cells belong to the genotype A_2O and that the reaction of the absorbed anti-O serum is specific for the substance O. He observed that occasional anti-O serums, despite complete absorption with A_1B cells, will react with some A_1 and B cells, presumably of the genotype A_1O and BO respectively. Apparently this interpretation is opposed by certain European workers who regard the factors A and B as mutations from the species-specific O receptor, which may be present in varying amounts even in cells which are homozygous for A and B. The author admits that the fact that A_2B cells (which lack the factor O in their genotype) react with anti-O serums speaks at first glance against his hypothesis. In order to reconcile these two views, he postulates that different anti-O serums are not uniform in their qualitative antibody content inasmuch as some contain anti-O species-specific antibodies and others a combination of these with anti-O group-specific antibodies. This the author attempts to prove by absorption experiments with A_2O cells which in occasional serums leave behind an antibody which reacts specifically with the factor O in heterozygous A and B cells. Further tests were carried out with purified agglutinin solution, but through some misfortune the author lost the only usable serum and had to terminate his experiments.

In the chapter on production of anti-M or N serums in rabbits, the author quotes several interesting methods taken from

the German and Japanese literature which presumably enhance the yield of good antiserums. One method combines passive and active immunization against the antigen N. Here the injection of the N cells is preceded by several injections of rabbit anti-N serums. The yield of high titer serums with this method is said to be 100 per cent. Another method requires the injection of vitamin C with the cells. This reportedly yields good serums in 50 to 60 per cent. Another method involves the injection of N cells with anti-M serum (and vice versa), which supposedly produces specific antiserums which can be absorbed without difficulty because of the low content of species-specific antibodies.

The chapter on the Rh factor is compiled less critically, which is understandable because of the author's limited personal experience in the field.

Altogether, the book offers interesting reading and should be read by all workers in the field, although some of the statements will require further substantiation.

The Psychologist in Industry. By M. E. Steiner, Research Psychologist, Personnel Division, General Electric Company, Bridgeport, Conn. Publication Number 79, American Lecture Series. A Monograph in American Lectures in Psychology, edited by Molly R. Harrower, Psychologist Consultant, Department of State, New York City and Washington. Cloth. $2. Pp. 107, with 7 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill., 1949.

In the preface of this brochure, the following statement of purpose is made:

"This monograph presents an introduction to the psychologist's field of work in industry: a description of techniques utilized in evaluating the worker's mental and emotional equipment, a consideration of selected topics reflecting the worker's attitude toward his job, his working environment, his employer and his associates, and a brief discussion of industrial problem cases."

In the context which follows, this purpose is fulfilled, with the result that a splendid presentation is made in the way of a thumbnail sketch of the interviewing technics and testing methods utilized in the employment procedures in American business and industry. A chapter of 10 pages includes the technic of "Observing the Worker on the Job." Another and final chapter deals with "Counseling the Worker."

The brochure is of value not only in that it summarizes in a brief manner the broad subject of testing which it covers, but, in addition, the author has included approximately 150 references representing a good cross section of the literature dealing with the subject matter presented.

Since the author is particularly experienced and interested in the Rorschach and other "blot tests," considerable space is given to the application of these tests in evaluation of personality traits. Furthermore, cases are mentioned illustrating the particular application of these as well as other tests.

This brochure is recommended to any one interested in the psychologic aspects of employment procedures.

The reviewer would like to see more space allotted to the consideration of groups and the study of group morale and attitude in the management of employees. The implications of the broad field of human relations seem to have been given too little space.

Questions and Answers, Volume 3. Edited and Compiled under the Supervision of J. F. Hammond, M.D., Associate Editor, The Journal of the American Medical Association. Selected from the Queries and Minor Notes Department of The Journal of the American Medical Association (1943-1949). Cloth. $3. Pp. 517. American Medical Association, 535 N. Dearborn St., Chicago 10, 1950.

Nearly 1,000 questions proposed by doctors throughout this country are answered in this book. The answers were prepared by competent authorities in the various specialties and embrace more than 42 different fields of medicine. The answers, however, do not represent the opinions of any official bodies unless specifically stated in the reply. The material has been selected from the questions and answers published in the Queries and Minor Notes Department of THE JOURNAL over the last seven years. This handy reference book contains much information that would be difficult to find quickly elsewhere. The book will be most helpful to general practitioners, specialists, public health workers and others in the medical and allied professions.

Color Psychology and Color Therapy: A Factual Study of the Influence of Color on Human Life. By Faber Birren. Cloth. $4.50. Pp. 284, with illustrations. McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 18; Aldwych House, Aldwych, London, W.C.2, 1950.

Enthusiasm of the author for a subject in which he has carried out many instructive studies makes this book interesting reading, but no real proof is presented that colors have specific curative value. There is a tendency to use the terms color and light interchangeably, and this makes for confusing conclusions. Another defect is found in the fallacy of "post hoc, ergo propter hoc" reasoning, with recoveries from various disorders attributed to certain colors. It might as easily have been stated that the recovery was in spite of the color.

A chapter dealing with diagnosis through color offers nothing new and, in fact, quotes such statements as "thick, dirty, muddy complexion (also the ruddy face and bulbous nose): Evidence of autotoxemia," for both diabetes and tuberculous peritonitis, "bronzing of the skin," and in late stages of cancer "yellowish, yellowish brown, or greenish brown skin" are cited as diagnostic pointers.

There are interesting reports on effects of various colors on plant growth, with numerous differences of opinion and a paucity of valid evidence of recent origin. In a chapter on emotional reactions it is postulated that certain colors may cause such reactions, and the author therefore concludes that "color therapy" should become a part of psychotherapy.

The subject is considered from four different aspects, historical, biologic, psychologic and visual; and that the author has done an extremely thorough job of searching the literature is attested by a total of 127 references in the bibliography. Perhaps of greatest interest is the historical approach. Physicians should find this volume of interest if not of scientific value.

Menstruation and its Disorders: Proceedings of the Conference Held Under the Auspices of The National Committee on Maternal Health. Edited by Earl T. Engle. Cloth. $6.50. Pp. 338, with illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W., Toronto 2B, 1950.

This small volume contains a collection of papers presented by the leading authorities in the field of gynecologic physiology. The discussions and comments by the members of the committee provide an invaluable addition to the subject matter presented and will help the practitioner and reader untrained in the methods of basic science investigation evaluate the clinical implications of the material.

Chronologically, the studies range from the actual demonstration of menstrual toxin, whose existence was assumed by primitive man, to a glimpse of tomorrow's medicine with investigations in the enzymatic activities occurring in the cells of the genital organs. Undoubtedly, the cytochemist may unfold many an occult process in the reproductive system, but it is hoped that attempted clinical use of this knowledge will be deferred until it may be applied rationally—in contrast with the early revelations in hormonology. Certain chapters are especially informative. The contribution on abortive human ova and their environment by Drs. Hertig and Rock, and the excellent discussions on this paper provide a veritable treasure chest of factual knowledge and calm recompense to many who have failed to "cure" sterility and habitual abortion.

Dr. Te Linde, fortified by his many years of attempting to solve this enigma, discusses functional bleeding from the standpoint of endometrial histology. The accompanying illustrations clearly support his contention regarding the bizarre patterns encountered. Dr. Buxton calls attention to variations in the secretory phase of normally menstruating women, refuting the popular concept of the fourteen day role of the corpus luteum and delegating another manifestation of nature to the category of metrologic observations. Twenty-five per cent of the cycles observed were abbreviated in this phase.

An admirable innovation in terminology is Dr. Wislocki's "exocervix" for the vaginal portion of the cervix and "endocervix" for the lining of this structure. Dr. Woodbury's graphic demonstration of myometrial activity in dysmenorrhea is stimulating from the therapeutic angle.

Approximately two thirds of this volume are devoted to demonstrations and technical methods which are useful to the laboratory investigator in anatomy and physiology but are not too

easily interpreted by the clinician. The specialist in gynecology will do well to read these articles with an eye to future developments, for, certainly, they point toward the newer knowledge of life's most important function.

This book is recommended to all interested in the study of human fertility and reproduction. It is not a textbook, but it does contain a generous quantity of clinically useful material. The illustrations are excellent and clear, the type large and readable and the typographic errors few.

Klinisches Lehrbuch der physikalischen Therapie. Herausgegeben von Dr. J. Grober, Professor für innere Medizin, Direktor des physikalisch-therapeutischen Instituts der Universität Jena, Jena. Bearbeitet von Prof. Dr. G. Boehm, et al. Second edition. Half-cloth. 18 marks. Pp. 378, with 204 illustrations. Gustav Fischer, Jena 15, Germany, 1950.

This readable and well illustrated work is intended for use as a textbook in the training of physical therapeutists in German-speaking countries. This accounts for the fact that the bibliographic references are all to articles written in that language, for the occasional statement of the apparently obvious and for the fact that most of the material is presented in a didactic rather than a critical spirit. The successive parts are by different contributors and deal with the nature and purpose of physical therapy in general, massage, therapeutic exercise, pneumotherapy, electrotherapy, water and heat, light, roentgen rays and radium, radon, spas and climatotherapy.

Surprising is the amount of space (29 pages of fine print) given to radium emanation therapy. The chapter on spas is commendable for its rational, conservative tone. Ultrasonics, which has been the subject of considerable recent experimentation in Germany, is briefly discussed. The discussion of electrotherapy is free from the confusion of terminology that still beclouds recent American literature on this subject. The hydrogalvanic bath is described without mention of the fact that most people now believe it to be a waste of time. There are many useful references and a good index. The book should prove to be useful not only for its intended purpose as a textbook, but also as a source of ideas for foreign readers.

A Text-Book of Neuro-Anatomy. By Albert Kuntz, Ph.D., M.D., Professor of Anatomy in St. Louis University School of Medicine, St. Louis. Fifth edition. Cloth. $8. Pp. 524, with 331 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1950.

The fifth edition of this textbook on neuroanatomy for students, based on the work of the author and the results of the studies of other investigators, follows in general the outline of the previous editions. There has been some rearrangement of material to fulfil more completely the author's attempt to present a topographic survey of the entire nervous system before considering the intimate details of the internal structure and functional interrelationships of the various parts. Two chapters have been added: one on the blood supply of the nervous system and the other on conditioned reflexes. There are several new figures, and the text of many of the chapters has been enlarged and revised to include recent advances. The studies of Penfield and his associates on the secondary motor and sensory areas in the cerebral cortex are mentioned, and the functional significance of frontal lobotomy is briefly discussed. The schematic distribution of the dermatomes as outlined by Keegan and Garrett is accepted and their figure reproduced.

The format of the book is pleasing. It is profusely illustrated with figures which are clearly reproduced and easy to comprehend. The subject matter is well covered, but the reviewer has doubts as to the pedagogic value of the author's plan of separating the consideration of the gross morphology from that of the internal structure of the various parts of the nervous system. The value of the book to the student is also limited by the fact that the illustrations are so scattered throughout the book that they can be used only with great difficulty as a guide in studying serial sections stained by the methods of Weigert or Nissl. In addition, the book suffers the defect which is common to most text books of neuroanatomy in that it attempts to cover too wide a field. Any attempt to discuss in a small book the gross morphology, histology, intricate fiber connections and physiologic implications usually falls short of the ideal and leaves the student with a feeling that none is adequately considered.

Metabolic Interrelations: Transactions of the First Conference, New York, N. Y., February 7-8, 1949. Edited by Edward C. Reifenstein, Jr., M.D. Editorial Assistant: Vivian Johnson. Paper. $2.95. Pp. 193, with 23 illustrations. Josiah Macy Jr., Foundation, 565 Park Ave., New York 21, [n.d.].

This book contains a series of papers dealing with metabolic interrelations given at a conference sponsored by the Josiah Macy Jr. Foundation. This conference was attended by twenty-five guests who specialize in metabolic studies. The number of participants is limited to permit informal discussions on various problems, and suggestions for additional research or possible solutions of the problems are offered.

The volume consists of nineteen papers given by men who are working on some phase of metabolism. Most of the papers have a section devoted to discussion in which the participating members offer suggestions or ask pertinent questions. The papers given at this conference generally deal with a specific phase of a problem, and therefore many experimental data are included. Six papers are devoted to problems in the field of hormones; five articles deal with various phases of calcification, and three are concerned with tracer studies in excretion and distribution problems. Other papers include studies on gastric and carbohydrate metabolism and on ketone body formation. A fairly complete and useful subject index has also been compiled.

The publication will be of interest to those groups and persons doing work in metabolism.

Stern's Applied Dietetics: The Planning and Teaching of Normal and Therapeutic Diets. Revised by Helen Rosenthal, B.S., Chief of Frances Stern Food Clinic, Boston, Pearl C. Baker, B.S., and Wilma A. McVey, M.D., Assistant in Medicine, Tufts College Medical School, Boston. Third edition. Cloth. $5. Pp. 293, with illustrations. The Williams & Wilkins Company, Mt. Royal & Guilford Aves., Baltimore 2, 1949.

This book has been revised by three of the author's former associates. The philosophy and arrangement of the earlier editions have been preserved. The major changes in this edition consist in the incorporation in the tables of food composition of values for sodium and potassium, the revision of many of the values in the tables of nutrient content and the laudable addition of tables of ideal weight for adults. This new edition should continue to serve as a useful aid in the planning and teaching of normal and therapeutic diets. It should prove of maximum usefulness in the teaching of dietetians, nurses, nutritionists and medical students.

A few errors have been carried over from the previous edition: Cream is cited as a principal source of calcium and milk as a principal source of iron and niacin (table 3). The usefulness of the inclusion of data on the manganese content of food may be questioned. The cooking loss of iron and of calcium is discussed, despite the fact that cooking usually adds to the iron and calcium content of vegetables because of the presence of these elements in water. It would be helpful if the literature citations were complete throughout the book, so that the reader could seek out original data.

Introduction to Psychiatric Nursing. By Marion E. Kalkman, R.N. Cloth. $3.75. Pp. 336, with 15 illustrations. McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 18; Aldwych House, Aldwych, London, W.C.2, 1950.

This book will orient the beginner to the scope, principles, technics and methods of modern psychiatric nursing. Emphasis is placed on the integrated responsibilities of the nurse with other members of the psychiatric team in the psychologic, social and physical treatment of the mentally ill. Psychotherapy and clinical psychiatry are discussed only when necessary to promote an understanding of the principles underlying the nursing care.

The chapters on normal personality development provide fundamental facts for an understanding of the deviations from normal in the mentally ill. They also will aid the nurse in developing insight into her own personality growth and development and will guide her towards improved personal relations. The principles of nursing care in psychiatric conditions with which the nurse will come into contact during her psychiatric experience are discussed in a clear and stimulating manner. The detailed bibliographic material is intended by the author to provide the nurse with sources for further study.

The philosophy which is fostered throughout this book is commendable as well as encouraging and stimulating to the newcomer in the field of psychiatric nursing. Basically, the author maintains that the concept of the psychiatric nurse as little more than a custodian of the patient is becoming outdated; the psychiatric nurse must be ready to take her place as a member of the health team in the field of psychiatry. As such, she will be expected to contribute intelligent understanding, creative ability and skill in procedures and technics.

This book is recommended for all schools of nursing libraries. The author's well organized presentation of material, easy style, perspective and scope of information will make this book particularly acceptable to students.

The Question of Lay Analysis: An Introduction to Psychoanalysis. By Sigmund Freud. Translated by Nancy Procter-Gregg. With Foreword by Ernest Jones, M.D. Cloth. $2.50. Pp. 125. W. W. Norton & Company, Inc., 101 Fifth Ave., New York 3, 1950.

The main theme of this volume centers about a discussion of the limitation of practice of psychoanalysis to medical practitioners. Material is presented in question and answer form between the author and an interested layman. Psychologic theories underlying the development and practice of psychoanalysis are discussed in sufficient detail that an understanding of them may be grasped by the lay reader.

Dr. Freud expresses the viewpoint that practice of psychoanalysis should not be confined solely to physicians but grants that patients who may undergo analysis in the hands of a lay therapist should, first of all, be subjected to a complete examination by a physician to determine whether they are suited to such treatment. Dr. Freud's primary objection to limiting analytic therapy to physicians appears to be a fear that psychoanalysis may be swallowed up by medicine, thus defeating its possibilities as applied to all other branches of knowledge which relate to origins and history of human culture, such as art and religion.

A foreword by Dr. Ernest Jones points out that in order to avoid alienation of psychoanalysis from medical cooperation in Great Britain it was decided to admit to practice only those lay analysts who had exceptional psychologic gifts. The British Medical Association was asked to provide a ruling regarding the conditions under which the work of such analysts could be performed. The ruling provided that all preliminary consultations and diagnoses were strictly reserved to medical practitioners, who were also to be responsible for a general supervision of the medical progress of the case.

The Sexual Perversions and Abnormalities: A Study in the Psychology of Paraphilia. By Clifford Allen, M.D., M.R.C.P., D.P.M., Physician in Charge of the Psychiatric Department of the Seamen's Hospital, Greenwich, England. Second edition. Cloth. $5. Pp. 346. Oxford University Press, 114 5th Ave., New York 11; Amen House, Warwick Sq., London, E.C.4, 1949.

This systematic didactic account of the various forms of sexual perversion first appeared in 1940 and was written with clarity and a complete absence of the sensationalism which appears in so many books on this topic. This description is true of the second edition which is nearly twice as large as the first, having been amplified throughout with case histories and theoretic discussion. The data of the Kinsey report and other recent studies have been used, and the author finds justifiable satisfaction in the fact that these observations in general support the conclusions and propositions he had advanced in the earlier edition.

One of the most interesting sections is the first few chapters which discuss the development of sexual instinct in man and animals in a rather general way. Although strongly influenced by psychoanalysis, the author's approach is definitely eclectic, and on moot topics he reviews the various theories and concepts by weighing them and expressing his own preference. If it can be said that psychiatrists in general may be classified as belonging to the optimistic or the pessimistic school, the author is definitely an optimist. He has been much encouraged with the results obtained in his own practice with any one of several treatment methods which he describes. Because of its eclecticism, this book will not completely satisfy anyone, but the subject matter is presented in a dignified and lucid manner.

Breast Deformities and Their Repair. By Jacques W. Maliniac, M.D., Clinical Professor of Plastic Reparative Surgery and Associate Attending Plastic Reparative Surgeon, New York Polyclinic Medical School and Hospital, New York City. Cloth. $10. Pp. 193, with 119 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1950.

This book is a treatise which is well illustrated with descriptive material which should be of great value to physicians who perform plastic operations on the breast. The author states in the preface, "It is the purpose of this book not only to present a complete and accurate commentary on the present status of mammaplastic surgery, but to create a better understanding of the problem associated with breast deformities, thereby breaking down unwarranted prejudice against their reconstruction."

The book is well bound and contains good paper and type. It is amply illustrated and for its purpose covers adequately in nine chapters the folklore and history, with embryologic, histologic, anatomic and physiologic aspects.

The classification, etiology and symptoms and the indications for surgical intervention are elaborated. The underlying principles and the details of well considered operative procedures are described and illustrated. Gynecomastia is also discussed and corrective measures described. The book also contains information on endocrine factors and therapy. It is well documented and includes extensive bibliographies at the end of each chapter.

The author states that the book is based on his own experience together with that of others working in the field and that unjustified and obsolete ideas and technics have been eliminated.

The Management of the Patient with Severe Bronchial Asthma. By Maurice S. Segal, M.D., Assistant Professor in Medicine, Tufts College Medical School, Boston. Publication Number 76, American Lecture Series. A Monograph in American Lectures in Chest Diseases, edited by J. Arthur Myers, M.D., Ph.D., F.A.C.P., Professor of Medicine and Preventive Medicine and Public Health, University of Minnesota Medical School, Minneapolis, Minnesota. Cloth. $3.50. Pp. 158, with 16 illustrations. Charles C. Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W., Toronto 2 B, 1950.

This monograph presents nonspecific treatment of asthma in condensed form and contains material not hitherto offered in any book. Since allergic management is not presented in detail, this book is undoubtedly meant for nonallergists who desire to be prepared to handle the nonallergic phase of asthma. One may wonder why such a nonspecialist should not as well be interested in the symptomatic management of moderate or mild asthma. One may wonder also about the propriety of devoting 29 pages to experimental studies showing degree of "protection" from histamine aerosol by various drugs. Since histamine aerosol bronchospasm responds differently to drugs than does allergic asthma, and since vital capacity studies do not give a reliable measure of respiratory function, the data may be misleading to the practitioner. The author's explanation for the failure of antihistamines in asthma on the basis of failure of absorption or inactivation in the gastrointestinal tract leads him to advocate intravenous antihistamine therapy. The weakness of this concept is apparent when it is realized that in the same patient the nasal allergy may be relieved by orally administered antihistaminic drugs.

Surface-Active Quaternary Ammonium Germicides. By Carl A. Lawrence, Ph.D. Cloth. $6. Pp. 245, with 3 illustrations. Academic Press, Inc., Publishers, 125 E. 23rd St., New York 10, 1950.

The physician will recognize agents of this class by such trade names as zephiran,® phemerol® and ceepryn.® Several hundred quaternary ammonium compounds have been prepared synthetically; approximately 30 are available commercially for practical application in surgical and general disinfection and for various industrial uses. The quaternary ammonium compounds comprise a class of amines in which the nitrogen has a covalence of 5. The fifth valence is satisfied by a halogen, hydroxyl or alkoxy radical. Natural vegetable or animal oils or resins are the original source for many of the "quats." Although the surface-active quaternary ammonium compounds are frequently designated as cationic detergents or cationic wetting agents, the author points out that surface agents may have both a wetting action and a detergent action and that the terms are

not synonymous. He further states that "most of the present quaternary ammonium germicides have relatively good wetting action and relatively poor detergent action."

The author has fulfilled a real need by this compilation of a comprehensive review of the literature on quaternary ammonium compounds. The volume includes chapters on the chemistry, physical properties, biology, pharmacology, toxicology and uses of these compounds, annotated with 550 references.

Since there exists considerable variation in antibacterial action between these compounds, physicians and surgeons will profit from the information contained in sections relative to the merits and limitations of the several quaternary ammonium compounds when they are utilized as preoperative germicides, as instrument "sterilizers," as aerosols, in wound irrigation, urology, ophthalmology, etc. Public health officials and hospital administrators will equally benefit from the sections on the activity of the "quats" against mycobacteria; sporicidal, fungicidal and virucidal properties; and sanitization of eating and drinking utensils, and laundry uses.

Pathologie du nouveau-né. Par Jean Baimes et André Lévy. Préface du professeur Robert Debré. Paper. 900 francs. Pp. 316. Gaston Doin & Cie, 8, Place de l'Odéon, Paris 6e, 1950.

The title, "Pathologie du neuveau-né," is not to be literally translated as pathology of the newborn but rather as "Diseases of the Newborn." This unpretentious volume of more than 300 pages is intended as an aid for the instruction of students and general practitioners. It presents in résumé a fairly complete exposition of the more important conditions and diseases encountered during the newborn period. As pointed out in the preface, the neonatal mortality in France is still double that of the Netherlands, Sweden or Great Britain. Therefore, a work, however humble, that disseminates information in France on the many ills and anomalies that may beset the newborn infant is important. It cannot, and is not intended to, replace a more complete treatise on the diseases of the newborn, which apparently is much needed in France. Yet, it should serve a useful purpose for the French practitioner. It is a reference book rather than a textbook and is presented in a sketchy "syndromic" form. It contains information on most of the diseases, malformations and metabolic disturbances of the newborn infant. The bibliography is by no means complete or comprehensive since it is comprised, with few exceptions, of references to the French literature.

Essential Urology. By Fletcher H. Colby, M.D., Chief of the Urological Service, Massachusetts General Hospital, Boston. Cloth. $8. Pp. 580, with 342 illustrations. The Williams & Wilkins Company, Mt. Royal & Guilford Aves., Baltimore 2, 1950.

The author states in the preface that his book was written mainly for students and that it is intended to give the important facts involving the embryology, anatomy and physiology of the genitourinary organs and a brief discussion of the diseases involving them. The author has accomplished what he set out to do and has set forth the essentials of urology in a concise form. The book should serve admirably as a textbook for students and should be of value for those who are interested casually in urology. Amony the chapters devoted to the clinical aspects of diseases of the genitourinary tract, those devoted to diseases of the prostate gland and of the bladder are outstanding and are worthy of thorough study. The closing chapter, on tuberculosis involving the genitourinary tract, is an excellent review of the subject.

Tom Cullen of Baltimore. By Judith Robinson. Cloth, $3.50. Pp. 435, with 20 illustrations. Oxford University Press, Inc., 114 5th Ave., New York 11; Amen House, Warwick Sq., London, E.C.4, 1949.

This semiautobiography recounts vividly, and with a host of intriguing details, the colorful life of the eminent gynecologist Thomas S. Cullen and his recollections of the early days of the Johns Hopkins Hospital. Life was not easy in the 1880's for the family of a circuit Methodist minister in Canada; as one of several children in such a family, young Cullen early learned some of the sterner virtues: frugality, self discipline and industry. The author is unusually successful in bringing to life those rugged but happy years and paints an unforgettable picture of his forbears and boyhood activities.

On almost every page throughout the volume, Miss Robinson's narrative is augmented and documented by insertions, some long and some brief, written by Dr. Cullen himself. These amplify the running story by intimate and detailed accounts of the episode or question under discussion and add much to the human quality of the book. Many of these throw new and informative sidelights on some of Cullen's great associates, such as Osler, Welch and Kelley, and so enrich the mosaic of the heroic era of the Johns Hopkins Hospital.

The latter part of the book is devoted in large measure to certain local controversial issues in which Dr. Cullen and his department of gynecology became embroiled. The chief of these was whether his department should become a subdivision of obstetrics or of general surgery. He fought vehemently for the latter alliance, and, although he was temporarily successful in effecting it, subsequent trends have been at variance with his viewpoint. The story of these vituperative duels reveals not a little personal rancor on both sides, and it is questionable that anything has been gained by washing this laundry in public. It seems regrettable also that some of Dr. Cullen's colleagues in his own department, several of whom have thrown worldwide luster on that clinic, are not even mentioned.

But this is an intensely personal book, and the lapses cited are perhaps pardonable on that score. The volume makes fascinating reading and is certain to prove of interest to gynecologists everywhere, to Hopkins-trained gynecologists in particular, and to Dr. Cullen's host of friends the world over.

How to Stop Killing Yourself. By Peter J. Steincrohn, M.D. Cloth. $2.95. Pp. 272. Wilfred Funk, Inc., 227 E. 44th St., New York 17, 1950.

This is another of the author's lively contributions to the literature of health education. This time he deals with the hidden impulse toward self destruction, which plays a larger or smaller part in the life of every human being. He touches first on the psychiatric theory of self preservation versus self destruction, including some humorous but trenchant remarks on suicide by not cooperating with your doctor and a sensible explanation of the somewhat startling fact that hypochrondriacs live longer. He includes in the self destructive category neuroses, accidents, alcoholism, overweight, heart ailments and blood pressure and other major ills, and then proceeds to the much livelier discussion of antidotes for minor ills. He is blandly unafraid of lampooning the sacred cows of public health, health education and medicine, and makes out an excellent case for his often original and always stimulating attitudes. He even goes so far as to return to the theme of a former book, in which he emphasized that "You don't have to exercise." This little book should make wonderful reading for doctors to put in the way of some of their more puzzling and perhaps irritating hypochrondriacs. Anyone who cannot get stimulation and benefit out of this book must indeed be far down the road toward complete domination by the death instinct.

Lehrbuch der organischen Chemie. Von Paul Karrer, Professor an der Universität Zürich. Eleventh edition. Cloth. 45 marks. Pp. 1082, with 6 illustrations. Georg Thieme Verlag Diemershaldenstrasse 47, (14a) Stuttgart O; [Agents for U. S. A.: Grune & Stratton, Inc., 381 Fourth Ave., New York 16], 1950.

Organic Chemistry. By Paul Karrer, Professor at the University of Zürich, Zürich. Original Translation by A. J. Mee, M.A., B.Sc. Fourth English edition, Revised and Enlarged in Accordance with the Eleventh German edition by H. V. Simon, Ph.D., and N. G. Bisset, B.Sc., A.R.C.S. Cloth. $8.50. Pp. 973, with illustrations. Elsevier Pub. Co., 215 Fourth Ave., New York 3; 118 Spuistraat, Amsterdam-C, Netherlands, 1950.

The latest German edition of this classic reference work and its excellent English translation (by H. V. Simon and N. G. Bissett, incorporating Mee's translation of an earlier German edition) are based on the literature through 1948, and in some sections 1949 references are cited. According to the preface of the English edition, the following topics have been added: organic silicon compounds, diacetyl peroxides and per acids and streptomycin; and the following topics have been revised extensively: elementary microanalysis, mineral oil [petroleum] products, organic lithium compounds, estrogenic substances,

vitamins, blood pigments, alkaloids and cyclooctatetranene. The latest nomenclature and printing conventions appear to have been adopted throughout, e. g., D- and L- are used to denote configuration in naming amino acids and simple sugars. The American student should be warned, however, that British rather than U. S. usage is adhered to in the English version.

All the topics one would expect to find are treated thoroughly. Somewhat surprising to those unacquainted with earlier editions of the work is the attention paid to organic compounds of a large number of metals, to dyes, to alkaloids (almost 100 pages) and to compounds containing heavy hydrogen and heavy oxygen. Dozens of compounds of importance to the biochemist and the pharmacologist are included, e. g., carotenes, vitamins, bile acids and sex hormones.

The printing, index and binding are good in both editions.

The Facilitation of Interstate Movement of Registered Nurses. By Bernice E. Anderson, R.N., Ed.D., Assistant Professor of Nursing Education, Teachers College, Columbia University, New York. Cloth. $4. Pp. 186. J. B. Lippincott Company, 227-231 S. 6th St., Philadelphia 5; Aldine House, 10-13 Bedford St., London, W.C.2; 2083 Guy St., Montreal, 1950.

This book fills a need for readily available information on the status of interstate licensure in the forty-eight states, the District of Columbia, Alaska, Hawaii and Puerto Rico. It attempts to locate, interpret and suggest possible solutions for problems of licensure which concern the interstate movement of registered nurses.

The review of the historical development of the legal control of nursing practice reveals the origins of the present problems of licensure. A knowledge of the factors which through the years have influenced legal control and those efforts which have already been made to eliminate or minimize these controls should serve as a guide toward a more successful approach in the future. Furthermore, the author offers her recommendations for action by interested groups.

Every nurse should be acquainted with the problems with which this book deals, since they can directly influence her future livelihood. The book should be included in all schools of nursing libraries and should be readily accessible to members of state boards, nursing organizations and all others concerned with interstate licensure.

Forgotten Religions (Including Some Living Primitive Religions). Edited by Vergilius Ferm, Ph.D.; Compton Professor and Head of The Department of Philosophy in The College of Wooster, Wooster, Ohio. Cloth. $7.50. Pp. 392, with illustrations. The Philosophical Library, Inc., 15 E. 40th St., New York 16, 1950.

Well illustrated and splendidly documented, this modest sized volume offers the scholar and the average reader essays by competent persons on the history, the tenets and practices of 19 forgotten religions. In addition, there is a fine preface by the editor and a comprehensive outline of proto-religions and early religions.

Several of the essays deal with the religions of peoples who were neighbors of the Hebrews and to whom the Old Testament makes reference. Scholars of the first rank present in convenient form information gathered from many sources, otherwise difficult of access, concerning the character of religions which were integral to the life and times of cultures which have flowed into our own and of cultures with which our own has had little to do. This reviewer found the essays on the religions of the Eskimo, the Hopi and Navaho Indians particularly interesting. Much of the material is drawn from the most recent investigations in ancient cultures and social anthropology. The style of this handsome volume is decidedly readable. Full bibliographies are given by each contributor. The index is accurate and adequate.

The Public Assistance Code of Illinois and Related Laws Affecting Public Aid, 1949-1951. State of Illinois, Adlai E. Stevenson, Governor. Paper. Pp. 89. Illinois Public Aid Commission, Room 2000, 160 N. LaSalle St., Chicago 1; Springfield, Ill., [n.d.].

This pocket-sized, 89 page pamphlet includes within its covers the text of the 1949 Public Assistance Code of Illinois and the texts of other laws closely related to the administration thereof, such as the act relating to indigent war veterans and the Uniform Support of Dependents Law.

A Primer for Diabetic Patients: An Outline of Treatment for Diabetes with Diet and Insulin Including Directions and Charts for the Use of Physicians in Planning Diet Prescriptions. By Russell M. Wilder, M.D., Ph.D., F.A.C.P., Professor and Chief of the Department of Medicine of the Mayo Foundation, University of Minnesota, Rochester. Ninth edition. Cloth. $2.25. Pp. 200, with 9 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, 1950.

This is the ninth edition of a useful manual for diabetic patients, which has been reviewed previously in THE JOURNAL. It reflects the increased liberality in diet recommended for patients who are using insulin and the somewhat less rigid view of glycosuria in such patients. Full and careful instructions for self testing with the modern tablet preparations are given, as well as instructions for the use of insulin and, of course, complete dietary recommendations, including substitutions. Each chapter closes with questions helping the patient to review the contents and directing him to the pages on which the answers will be found. There are food classification tables and food value tables. The book can be recommended to physicians for their patients without reservation.

Fundamentals of Chemistry and Applications, Chosen from Inorganic, Organic, and Biochemistry, with Applications in Physiology, Microbiology, Nutrition, and Everyday Concerns. By Charlotte A. Francis, A.M., and Edna C. Morse, R.N., A.M., Ed.D., Assistant Professor of Home Economics (Chemistry), Teachers College, Columbia University, New York. Third edition. Cloth. $4.50. Pp. 545, with 99 illustrations. The Macmillan Company, 60 Fifth Ave., New York 11, 1950.

This college textbook for nurses, home economists, bacteriologists and others not intending to be professional chemists is amazingly simple and thorough. At the expense of inorganic chemistry, more than the customary space is given to colloid, organic and biochemistry. The authors have had practical experience in teaching students for which this book is intended. This experience shows in their avoidance of abstractions, the gradual approach to difficult things and the use of interesting examples both in the text and in the questions at the ends of chapters. There is a good index. The makeup of the text is excellent.

Mitchell-Nelson Textbook of Pediatrics. Edited by Waldo E. Nelson, M.D., Professor of Pediatrics, Temple University School of Medicine, Philadelphia. With the Collaboration of Sixty-Three Contributors. Fifth edition. Cloth. $12.50. Pp. 1658, with 426 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, 1950.

The reviewer considers this fifth revised edition the best textbook in pediatrics for the medical student and an excellent reference for the pediatrician and general practitioner. The author has shown wise discernment in choosing the sixty-three specialists to write the various sections of the book. The editor and his collaborators have done an excellent piece of work in encompassing in one volume the various aspects of child care and in incorporating the more recent advances and thought in pediatrics. Where information is controversial, the contributors have made a commendable effort to make the reader aware of the differences in thought and practice. There is a list of references at the end of each section. The textbook is of good quality material, the type is legible and the illustrations are well selected.

Textbook of Abnormal Psychology. By Carney Landis, Professor of Psychology, Columbia University, New York, and M. Marjorie Bolles. Second edition. Cloth. $5. Pp. 634, with 44 illustrations. The Macmillan Company, 60 Fifth Ave., New York 11, 1950.

As an introductory text for nonmedical students of psychology this book is satisfactory, although not without many defects. The format is excellent, the style simple and easy to read. There is an excellent index and a good glossary. The bibliographic references are skimpy.

The contents reflect these clinical psychologists' understanding of the field of psychiatry, which in truth is abnormal psychology. Why then should the psychologist take on himself the task of writing outside his field of training and experience? Simply because, as the book indicates, many clinical psychologists are trying to become independent psychiatrists, i. e., psychotherapists. Good or bad, such is the tendency in the United States, and it is so reflected in this textbook.

QUERIES AND MINOR NOTES

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

FASTING AS A TREATMENT

***To the Editor:*—Please give me information on fasting for the cure of certain conditions such as hypertension.**

C. G. Berger, M.D., Quincy, Mass.

ANSWER.—Thorough studies of a one month fast (F. G. Benedict: A Study of Prolonged Fasting, Publication 203, Carnegie Institution of Washington, 1915) included daily observations of blood pressure, sitting and lying, typical examples being 122-124/90-93 during four days before the fast, 134 systolic and 100 diastolic on the second fast day, and 98 systolic and 79 diastolic on the thirtieth fast day. Morgulis ("Fasting and Undernutrition," New York, E. F. Dutton & Co., Inc., 1923) gives similar figures from other fasting experiments, with the generalization that the pressure falls gradually during the first 15 days of starvation and remains nearly constant thereafter.

The extensive vogue of fasting among many peoples from earliest antiquity was derived from a mixture of medical and religious ideas. It was prescribed by physicians from Hippocrates onward. In accordance with medical concepts during and following the Middle Ages it was sometimes combined with bleeding and purging. Though obviously harmful for many conditions, the prevalence of this practice was perhaps encouraged by genuine benefits in some circulatory troubles. Correspondingly, from the first dawn of medical diagnosis down to the time of clinicians such as Naunyn and Von Noorden, there was continuous advocacy of single or repeated fast days for heart disease, dropsy, apoplexy, nephritis, eclampsia and uremia and more severe fasting for aneurysm. It was noted that the blood pressure of diabetics with hypertension, as well as the blood sugar, was reduced by fast days. The original Karell diet supplied only 60 to 200 cc. of milk three or four times a day for five or six weeks, so that this and similar regimens amounted to severe starvation.

The benefits of these treatments undoubtedly included frequent reductions of blood pressure, even before there was any conception of blood pressure or any means of measuring it. These benefits are now mostly explainable by the following factors: (1) complete exclusion of salt; (2) undernutrition, an influence demonstrated by the frequent reduction of blood pressure with simple weight reduction, also by the reported lower incidence of atherosclerosis among thin as compared with fat individuals; (3) rest or comparative inactivity, and (4) psychic influences. Thus the benefits of fasting, at least of short duration, are now obtainable without the deleterious features.

Whether anything additional can ever be accomplished by more radical inanition is an open question. Volhard and other modern authorities have believed that fast days were helpful in some cases of eclampsia or uremia, beyond what could be accomplished by salt-free and protein-free diet. Determann ("Hungerkuren," *Jahresk. f. ärtzl. Fortbild.* **6**:17, 1925) recommended fast cures for "presclerotic" persons and members of hypertensive families. We may refer back as far as Valsalva (1666-1723), who gained fame with a primitive rice cure for the severest heart troubles and aneurysm, in which with strict bed rest the diet was reduced gradually to only 250 Gm. of "milk rice" in the morning and 125 Gm. in the evening, continued until the patient could no longer raise his arms and then increased very gradually. Benedict's study of prolonged fasting in a normal subject has never been duplicated in a patient with severe hypertension. Also, there has never been a modern attempt to control the severest hypertension with such starvation and persistent emaciation as was used for the severest diabetes before the discovery of insulin.

This diabetic treatment had a clear explanation, as demonstrated experimentally and clinically by Allen, namely the relation between the internal pancreatic function and the total body mass and metabolism, so that not only is deficiency of the island function compensated by a suitable reduction of body weight and metabolism, but also, it is recognized today, the insulin requirement is reduced by weight reduction and is increased with gain of weight, especially with obesity. Theoretical reasons for a possible reduction of blood pressure are the known hypotensive influence of fasting and undernutrition, the reduction of blood volume, the lessened circulatory burden with reduced tissue mass and conceivable influences upon the adrenals, hypophysis or other endocrine organs. Therefore, though there are easier rational measures for ordinary cases, if there is a patient with hypertension who resists all other treatment and whose pains or other symptoms are distressing enough to warrant desperate measures, a trial of fasting to the point of emaciation may be a justified and interesting clinical experiment.

SPONTANEOUS NYSTAGMUS

***To the Editor:*—I have had repeated discussions with colleagues who are otolaryngologists. Their examination of patients who have sustained head injury has been an elaborate ritual of looking for static, spontaneous, positional, rotational and caloric nystagmus. Timing has been done with a stop watch; differences in responses are interpreted as vestibular imbalances and supposedly support the contention that the patient has a postconcussional syndrome. When this is positive, the patient is given nicotinamide, 100 mg. three times a day, and then observed weekly to see whether the nystagmus disappears. Patients who do not exhibit nystagmus are not supposed to have a postconcussional syndrome. My studies in neuro-ophthalmology have led me to no such conclusions. I would appreciate information on this subject.**

Alfred A. Stonehill, M.D., Chicago.

ANSWER.—Except in a few instances in which there is a physiologic horizontal nystagmus to the left on the left lateral gaze and one of equal amplitude and rapidity to the right on the right lateral gaze the normal person does not exhibit spontaneous nystagmus. Therefore, when such a spontaneous nystagmus exists, whether it be static, positional or induced by rapid movements of the head, it is pathologic. If such spontaneous nystagmus is vestibular and not ocular in type it points to some derangement of the vestibular system. It can be produced by a number of otologic and central nervous system conditions, but it does bespeak a disturbance of the vestibular mechanism.

Should such spontaneous rotary-horizontal nystagmus occur in a person who has not any other evidence of otogenic or central nervous system disease and who has previously sustained an injury to the head it is fair to assume that the nystagmus is the result of some damage, either central or peripheral, to the vestibular mechanism. If the individual complains of vertigo, a purely subjective symptom, and spontaneous nystagmus is found the nystagmus so found constitutes objective proof of the subjective complaint of vertigo.

The patient may have a weak, moderate or strong nystagmus. It may be present only when he is looking in the direction of the quick component and may be of small amplitude (weak nystagmus), or it may be present in all positions of the eyes and may be of large amplitude. In the first instance it may easily be missed, especially if the patient fixes his gaze. It is to prevent the patient from suppressing the weak nystagmus by fixation that strong hyperopic lenses are placed before his eyes. These strong hyperopic lenses, whether they be Bartel's glasses or Frenzel's glasses, have the further advantage of magnifying the nystagmic movements of the eye.

If the two vestibular mechanisms are in a normally healthy condition they will each respond in the same way to a similar stimulus within certain normal limits. If the right vestibular apparatus responds differently to a known caloric or thermal stimulus than does the left then they are not in balance and one must presuppose a derangement of function of one or the other. This deranged function, or lack of balance, can produce vertigo, past pointing, drift in the deviation test, gait deviations and a falling reaction. It does not follow that all these symptoms and signs are present at the same time.

The damage to the vestibular apparatus may be peripheral or central but is probably more often the latter than the former. When the damage is peripheral the signs of vestibular disturbance are often, though not always, associated with a loss of

hearing, temporary or permanent, and the vertigo is frequently continuous for a time. When the damage is central the vertigo is intermittent and comes in spells. These episodes are probably initiated by vasomotor changes in the floor of the fourth ventricle occasioned by rapid changes in the position of the head, exertion, alcoholic indulgence, work above ground level and exposure to heat. In this instance spontaneous nystagmus will not be present on every examination but when absent can usually be provoked. These remarks concerning a pathologic nystagmus also apply to the pointing and falling reactions.

TESTS FOR RH FACTOR AND BLOOD TYPE

To the Editor:—Are the tests for Rh factor and blood type reliable when performed with umbilical cord blood or with blood of an infant less than 2 weeks old? Is it possible that when they are performed by skilled technicians with potent serums the results may be contradictory as compared with these obtained when the infant is 2, 4 or 6 months of age?

John F. Noguera, M. D., Kingsville, Md.

ANSWER.—The Rh agglutinogen is fully developed at birth, but Rh testing of blood from a newborn infant sometimes offers special difficulty. If the baby is not erythroblastotic, Rh testing offers no special problem when performed by the tube agglutination method with a good anti-Rh_0 serum. Since the plasma of newborn infants is usually deficient in its content of conglutinin, reactions by the slide technic with a conglutinating serum are often somewhat weaker than the reactions of blood from older children or adults. However, all typing serums commercially available at present are controlled as to potency and specificity by the National Institutes of Health and are adequate to demonstrate Rh agglutinogens when present in the blood of normal babies. Therefore skilled technicians should have no difficulty with tests for the Rh factor in normal babies. In typical cases of erythroblastosis the baby's red cells are usually "blocked" or "coated" by univalent Rh antibodies passively acquired from the mother by placental transfer while in utero. In such cases the baby's blood, even though Rh positive, may give weak or even negative reactions in the tube agglutination test. However, coating of the baby's cells does not interfere with the reactions by the slide conglutination method. If the technician is warned of the possibility that the baby may be erythroblastotic, so that he may guard against this eventuality, there should be no difficulty in typing the blood of such infants as well as that of normal babies.

EXCESSIVE DESQUAMATION OF VAGINAL EPITHELIUM

To the Editor:—A married woman aged 24 has one child 5 years of age and had one miscarriage in 1946. At irregular intervals for three years she has had excessive desquamation of the epithelial lining of the vagina. Examination of the material which is sloughed off shows only vaginal epithelial cells. This material passes in large amounts, and it is necessary for the patient to wear a protecting pad. It may occur at any time of the month and seems to have no relation to her periods, except that when the desquamation is at its height periods do not occur; at one time during 1948 and 1949 the patient was amenorrheic for almost twelve months, while there was a constant and profuse discharge due to this desquamation. She has been treated with estrogenic substances, progesterone, thyroid, vitamin A, vitamin B complex and other remedies without apparent alteration of her condition. Other than some mild cervicitis, she has not had signs of pelvic disease. She has a mild retroversion of the uterus, and wearing a pessary seems to reduce the amount of desquamation. Suggestions as to diagnosis and therapy will be appreciated.

M.D., Arizona.

ANSWER.—The case presented is unusual. There are, in general, four causes of the condition described: (1) infection of any kind and particularly yeast, Trichomonas and fungous types; (2) irritating drugs, particularly those used in douches; (3) allergy-producing materials of any type used locally or generally, and (4) hormones, particularly estrogens. This may be from artificial medication or from natural tumors providing excessive amounts of endocrine secretion such as granulosa cell tumors. These also are apt to produce amenorrhea.

OCCIPUT POSTERIOR AND BREECH PRESENTATION

To the Editor:—Does a persistent occiput posterior or face to the pubis ever deliver itself spontaneously without assistance? In a primipara with a breech presentation what is the delivery? Is a cesarean section ever indicated?

M.D., Rhode Island.

ANSWER.—A baby can be delivered in the persistent occiput posterior position spontaneously by one of two mechanisms if the pelvis is adequate. As descent of the head continues the forehead eventually stems behind the pubis and the head appears over the perineum in extreme flexion. The head can become increasingly deflexed, the brow appearing at the vulva, slowly followed by the occiput, and the face emerges from behind the pubis. The labor is likely to be long and tedious, and the perineum may be extensively damaged unless a deep episiotomy is done.

The safest method of conducting a breech presentation is to allow labor to progress naturally. When the breech begins to distend the perineum, an episiotomy can be done with the woman under local anesthesia. The breech is allowed to deliver by the patient's bearing down efforts, following which the patient should be given a general inhalation anesthetic. The anterior shoulder and arm are delivered by sweeping the arm and forearm over the face and out from under the pubic arch. The posterior shoulder and arm are delivered posteriorly in the same way. If there is difficulty in delivering the arm, the shoulder girdle can be rotated so as to sweep the posterior shoulder and arm up under the symphysis. Great care must be exercised in the rotation of the shoulders to minimize trauma to the baby. The anterior shoulder, which is now posterior, can be delivered in this position, or if this is difficult, it too can be rotated anteriorly. The aftercoming head is best delivered by the Celsus-Wigand-Martin maneuver or forceps, which can be easily applied if the head is in the pelvis. Cesarean section may be indicated in breech presentation for cephalopelvic disproportion, a large baby, an average baby in an elderly primigravida, a poor mechanism of labor with failure of normal progress and a lack of dilatation and descent of the breech, particularly in incomplete breech presentation.

PREGNANCY FOLLOWING MASTECTOMY

To the Editor:—A woman aged 36 had a radical mastectomy performed two and one-half years ago; the axillary lymph nodes were not involved, and there is no sign of recurrence today. She is now two months pregnant and is desirous of completing the pregnancy, as she has had no children. Aside from the age of the patient, it is expected that she should have little trouble with the pregnancy. What will be the effect of pregnancy on such a patient?

Vaun T. Floyd, M.D., New York.

ANSWER.—There is a pronounced difference of opinion on this subject. Some believe that operation for cancer of the breast should be followed by either surgical removal or irradiation of the ovaries. Others believe that such a course is not justified and that even pregnancy should be allowed. Estrogens, like thyroid, enhance growth and development in certain tissues, and pregnancy releases large amounts of estrogen. If one could be certain that cure had occurred in any particular case then harm would not come from a pregnancy. An interval of two and one-half years following treatment without recurrence would appear to border on a cure, but lesions have metastasized later, even ten years later.

One must, of course, consider other factors. Even if the mother's chances are hopeless, does she have the right to bear a child that she may not be able to care for? Should she be allowed to have the pleasure of a child if she longs to have one? Then too, the child has certain rights. These are difficult problems to evaluate. In this case three choices are possible: (1) allow the pregnancy to continue, watching carefully for metastases; (2) perform a therapeutic abortion and advise against pregnancy in the future, or (3) perform a hysterectomy and remove tubes and ovaries, which is a radical procedure at this late date.

PATENT DUCTUS ARTERIOSUS AND PREGNANCY

To the Editor:—A girl aged 17 with a patent ductus arteriosus is one month pregnant. Physical examination otherwise reveals nothing significant. Her exercise tolerance is satisfactory, and she has never shown signs of cardiac failure. The electrocardiogram is essentially normal. The vital capacity is within normal limits. Please discuss the need for therapeutic abortion. She will later have surgical correction of her congenital vascular lesion.

M. D., Washington.

ANSWER.—Women with congenital heart disease who do not have cyanosis, polycythemia, or myocardial failure may tolerate well pregnancy and labor. This girl with a patent ductus arteriosus should be carefully examined for the dynamic significance of the lesion—high pulse pressure, exercise tolerance tests, oximetry and fluoroscopic evaluation of the cardiac chambers. Should the patent ductus arteriosus be dynamically significant, a therapeutic abortion should be considered. Congestive failure and the possibility of subacute bacterial endocarditis would make continuation of pregnancy hazardous. If pregnancy is permitted to continue in spite of a dynamic significant ductus arteriosus, the patient should have unusually good antepartum care in order to detect complications early. A salt-free diet and digitalis may be used to combat congestive failure, and antibiotics should be used to treat infections. Cesarean section should be avoided if possible, because there is knowledge of 2 fatal cases of air embolism in women having patent ductus arteriosus who were delivered by cesarean section.